

U N I VERSITYOF NOTRE DAME

## 2009-2010

 Bulletin of Information University of Notre Dame Graduate Programs and PoliciesThe University reserves the right to change its admission, registration, and graduation requirements as necessary. The course offerings and requirements of the University of Notre Dame are continually under examination and revisions are expected. This Bulletin of Information is not a contract; it merely presents the offerings and requirements in effect at the time of publication and in no way guarantees that the offerings and requirements will remain the same. Every effort will be made to provide advance information of any changes.
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The Michiana Regional Transportation Center provides from one location services for travel by air, train, bus, and rental car, including the South Shore Railroad, an electric commuter train to Chicago. South Bend is also served by Amtrak. The city lies about 90 miles east of Chicago, Illinois, 140 miles north of Indianapolis, Indiana, and 200 miles west of Detroit, Michigan.

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# Academic Calendar 2009-2010 

## Fall Semester 2009

## August

25: Classes begin;
Mass-formal opening of school year

## September

2: Last day for course changes

## October

17: Midsemester break begins
26: Classes resume
30: Last day for course discontinuance

## November

1: Application deadline for admission to the Graduate School for spring semester 2010
13: Dissertation and thesis formatting checks due
16: Registration for spring semester 2010
25: Thanksgiving holiday begins
30: Classes resume

## December

4: Last day for master's examinations and Ph.D. dissertation defenses for graduation in January 2010
10: Last class day
11: Reading days begin;
Last day for presenting completed theses and dissertations in the Graduate School office for graduation in January 2010
14: Final examinations begin
21: All grades submitted through insideND by 3:45 p.m.

## Spring Semester 2010

## January

12: Classes begin
20: Last day for course changes

## February

1: Deadline for applying to the Graduate School for fall semester 2010 admission and financial aid

## March

6: Midsemester break begins
15: Classes resume
17: Registration for summer session 2010 begins
19: Last day for course discontinuance;
Dissertation and thesis formatting checks due

## April

2: Easter holiday begins
6: Classes resume
9: Last day for master's examinations and Ph.D
dissertation defenses for graduation in May 2010
12: Registration for fall semester 2010 begins
16: Last day for presenting completed theses and dissertations in the Graduate School office for graduation in May 2010
28: Last class day
29: Reading days begin
May
3: Final examinations begin
10: All grades submitted through insideND by 3:45 p.m.
14: Commencement weekend begins

## Summer Session 2010

## June

22: Classes begin
25: Dissertation and thesis formatting checks due

## July

16: Last day for master's examinations and Ph.D dissertation defenses for graduation in August 2010
23: Last day for presenting completed theses and dissertations in the Graduate School office for graduation in August 2010

## August

6: Last class day
11: August official graduation date (no ceremony)

## January

3: January official graduation date (no ceremony)

All dates subject to change.
For more information, visit the Office of the Registrar's Web site at http://registrar.nd.edu.

# The University 

## Notice of Nondiscrimination

The University of Notre Dame does not discriminate on the basis of race, color, national or ethnic origin, sex, disability, veteran status, or age in the administration of any of its educational programs, admissions policies, scholarship and loan programs, athletic and other school-administered programs, or in employment.

The University has designated the director of its Office of Institutional Equity to handle all inquiries regarding its efforts to comply with and carry out its responsibilities under Title IX and under Section 504 of the Rehabilitation Act of 1973. The Title IX and Section 504 coordinator may be contacted as follows:
Director
Office of Institutional Equity
414 Grace Hall
University of Notre Dame
Notre Dame, IN 46556
(574) 631-0444

## The Spirit of Inclusion at Notre Dame*

The University of Notre Dame strives for a spirit of inclusion among the members of this community for distinct reasons articulated in our Christian tradition. We prize the uniqueness of all persons as God's creatures. We welcome all people, regardless of color, gender, religion, ethnicity, sexual orientation, social or economic class, and nationality, for example, precisely because of Christ's calling to treat others as we desire to be treated. We value gay and lesbian members of this community as we value all members of this community. We condemn harassment of any kind, and University policies proscribe it. We consciously create an environment of mutual respect, hospitality, and warmth in which none are strangers and all may flourish.

## Policies on Harassment

Sexual and discriminatory harassment and harassment in general are prohibited by the University. Definitions and policies regarding all forms of harassment and other aspects of student life and behavior are described in du Lac: A Guide to Student Life (the student handbook). All policies,
procedures, guidelines and codes of conduct that establish the official parameters for student life at Notre Dame are contained in this handbook. Unless otherwise noted, the policies and procedures in the handbook apply to all graduate and professional students, whether the behavior occurs on or off campus. The handbook may be obtained from the Office of Residence Life and Housing, located at 305 Main Building, and is available from the Office of Residence Life and Housing Web site at http://orlh.nd.edu.

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# The Graduate School 

Notre Dame is the world's pre-eminent Catholic research university, a center of learning that embraces the intellectual ferment of academic enquiry and encourages its students and faculty to address ultimate questions, relationships among religion and the academic disciplines, and ethics. Quality is the hallmark of our graduate programs, which is reflected in the selectivity of our admissions, the comparatively small size of entering classes, and the close, personal mentoring that is possible in such an environment. World-class faculty and gifted graduate students share a vision of enquiry, dedication to scholarship and teaching, and service within and without the academic community.

Distinguished faculty, financial support for research, and ongoing investment in facilities invigorate graduate study at Notre Dame. Major construction projects continue to add new campus buildings and create environments that bring faculty, graduate students, and undergraduates together in cross-disciplinary research at the highest level.

## History

Located north of the city of South Bend, Indiana, the University of Notre Dame was founded in 1842 by the Rev. Edward F. Sorin, a priest of the Congregation of Holy Cross. The state of Indiana chartered the University by a special act of the legislature. Combining the style of the French "college" and the seminary where Father Sorin and his congregational fellows studied for the priesthood, Notre Dame began as both a secondary school and a four-year college offering the baccalaureate degree in the liberal arts. It soon adapted to the style and structure of the typical nineteenth-century American university, introducing a science curriculum in 1865, the first American Catholic law school in 1869, an engineering college in 1873, a graduate program in 1918, and a college of business in 1921. The North Central Association first accredited the University in 1913. Notre Dame first began to award advanced degrees in 1918; the Graduate School was instituted in 1944. Since 1990, it has been administered by a dean and several associate deans, and the Graduate Council. It has four divisions - humanities, social sciences, science, and engineering - and includes approximately 30 departments and programs that offer master's or doctoral degrees. There are about 10,000 undergraduates and

1,700 graduate students at Notre Dame, in addition to post-doctoral fellows, and another 1,500 in the law and business schools. Over $85 \%$ of graduate students receive some form of financial aid. They come from all fifty states and over 100 nations.

## Administration

Administered originally by a graduate committee of faculty members, the Graduate School was organized formally in 1944 with a graduate dean and graduate council. In 1971, the newly created position of vice president for advanced studies underlined the University's intense focus on building quality in the graduate programs. The position's title was changed in 1990 to vice president for graduate studies and research, and several assistant and associate dean positions were created to assist the vice president. In 2007, the research office was separated from the Graduate School, and the new position of dean of the Graduate School, with exclusive responsibility for graduate studies, was created.

## The Graduate Council

Following is the Graduate Council membership for the 2009-2010 academic year.

## Ex Officio Members

Gregory E. Sterling, Ph.D. Chair and Dean of the Graduate School

## Robert J. Bernhard, Ph.D.

Vice President for Research
Gregory P. Crawford, Ph.D.
Dean of the College of Science
Peter K. Kilpatrick, Ph.D.
Dean of the College of Engineering
Michael Lykoudis, M.Arch
Dean of the School of Architecture
John T. McGreevy, Ph.D.
I.A. O'Shaughnessy Dean of the College of Arts and Letters
Nell Jessup Newton, J.D. Joseph A. Matson Dean of the Law School and Professor of Law
Carolyn Woo, Ph.D. Martin J. Gillen Dean of the Mendoza College of Business and the Raymond and Milann Siegfried Professor of Entrepreneurial Studies
Jennifer A. Younger, Ph.D. Director of University Libraries

## Elected Members

Sunny Boyd, Ph.D.
Professor of Biological Sciences
David Campbell, Ph.D.
Associate Professor of Political Science
Sandra Gustafson, Ph.D.
Associate Professor of English
Larry Lamm, Ph.D.
Physics, Research Faculty
John Renaud, Ph.D.
Professor of Aerospace and Mechanical Engineering

## Appointed Members

Ani Aprahamian, Ph.D.
Professor of Physics
Mary Catherine Hilkert, O.P., Ph.D.
Professor of Theology
Scott Maxwell, Ph.D.
Professor of Psychology
Mary Ann McDowell, Ph.D.
Associate Professor of Biology

## Representatives from the Academic Council

Six representatives from the Academic Council will be announced.

## Graduate Student Representatives

Andrew Bramsen
Political Science, President of the Graduate Student Union
Victoria Froude
Chemical and Biomolecular Engineering, Co-Vice President of the Graduate Student Union

## Graduate School Representatives (Non-Voting)

Edward Maginn, Ph.D. Associate Dean for Academic Programs Nyrée McDonald, Ph.D. Associate Dean for Recruitment and Admissions
Barbara M. Turpin, Ph.D. Associate Dean of the Graduate School

## Graduate Student Union

Through a council of elected officers, appointed committee chairs and representatives from the departments of its constituent colleges, the Graduate Student Union (GSU) provides a variety of services and represents its membership on several University councils and committees. In particular, it subsidizes graduate student travel to present original research, promotes excellence in graduate education, looks for the highest quality of life for graduate students, and maintains a liaison with the administration regarding pertinent issues. The GSU publishes monthly newsletters, provides listserv updates, conducts a graduate orientation program, and offers awards for outstanding teaching assistants and graduate instructors, in addition to providing various social, cultural, and intellectual activities. The GSU is the graduate students' official liaison with the University administration and the Office of Student Activities.

The Graduate Student Union finances its operations and Conference Presentation Grant through contributions from the Graduate School and a yearly, mandatory activity fee assessed on all graduate students through the Office of Student Accounts. The Graduate Student Union maintains offices in the LaFortune Student Center at the mezzanine location; send any e-mail inquiries to dfrahn@nd.edu. Telephone: (574) 631-6963, Web: http://www.gsu.nd.edu

## Graduate Degrees Granted

Master of Architecture
Master of Architectural Design and Urbanism
Master of Arts in the following fields: Art History, Design, and Studio Art
Early Christian Studies Economics
Educational Administration English French and Francophone Studies History History and Philosophy of Science Iberian and Latin American Studies Italian Studies Peace Studies Philosophy Political Science Psychology Sociology Theology
Master of Divinity
Master of Education (only for students in the Alliance for Catholic Education program)
Master of Engineering (only with J.D.)
Master of Engineering in Mechanical Engineering
Master of Fine Arts in the following fields: Creative Writing Design Studio Art
Master of Medieval Studies
Master of Sacred Music
Master of Science in Aerospace Engineering

Master of Science in Applied Mathematics
Master of Science in Bioeingineering
Master of Science in Chemical Engineering
Master of Science in Civil Engineering
Master of Science in Computer Science and Engineering
Master of Science in Electrical Engineering
Master of Science in Environmental Engineering
Master of Science in Mechanical Engineering
Master of Science in the following fields: Biochemistry Biological Sciences
Chemistry
Geological Sciences
Mathematics
Physics
Master of Theological Studies
Doctor of Philosophy in the following fields: Aerospace and Mechanical Engineering
Biochemistry
Bioengineering
Biological Sciences
Chemical and Biomolecular Engineering Chemistry
Civil Engineering and Geological Sciences
Computer Science and Engineering
Economics
Electrical Engineering
English
History
History and Philosophy of Science
Literature
Mathematics
Medieval Studies
Peace Studies
Philosophy
Physics
Political Science
Psychology
Sociology
Theology

## Areas and Fields of Study

The University of Notre Dame offers graduate programs leading to master's and/or doctoral degrees in the following areas and fields of study:

```
Aerospace and Mechanical Engineering
    Aerospace Sciences
    Biomechanics and Biomaterials
    Computational Mechanics
    Control Systems
    Flow Physics and Control
    Fluid Mechanics
    Manufacturing
    Materials Science
    Mechanical Systems and Design
    Solid Mechanics and Materials
    Thermal Sciences
Art, Art History, and Design
    Studio Art+
        Ceramics
        Painting
```

Photography
Printmaking
Sculpture
Art History*
American
Ancient
Contemporary
Medieval
Modern European
Renaissance and Baroque
Design+
Graphic Design
Industrial Design
Biological Sciences
Animal Behavior
Aquatic Biology
Biochemistry
Biogeochemistry
Biotechnology
Cancer Biology
Cell and Molecular Biology
Developmental Biology
Ecology
Ecosystem Ecology
Endocrinology
Environmental Biology
Environmental Microbiology
Evolutionary Biology
Genetics and Bioinformatics
Genomics
Medical Entomology and Vector Biology
Microbial Pathogenesis
Neurobiology
Nutritional Sciences
Parasitology and Infectious Diseases
Physiology
Plant Science
Population Biology
Chemical and Biomolecular Engineering
Applied Mathematics
Atomistic Simulation of Materials
Biomolecular Engineering
Biophysical Characterizations of
Macromolecules
Catalyst Synthesis and Characterization
Chemical Sensing
Carbon Dioxide Capture
Combinatorial Materials Development
Computational Heterogeneous Catalysis
Density Functional Theory
Drug Delivery
Drug Design
Ecological and Environmental Modeling
Electrokinetics
Fuel Cell Technologies
Genetic Diagnostics
Heterogeneous Phase Change Simulation
Ionic Liquids
Materials Science
Micro and Nano-Fluidics
Multiphase Flow Dynamics
Optoelectronic Materials
Oscillatory Separations
Peptide Design and Synthesis
Phase Equilibrium
Process Systems Engineering
Soft Lithography
Suspension Mechanics

THE GRADUATE SCHOOL

Chemistry and Biochemistry
Analytical Chemistry
Molecular Biophysics
Drug Design and Discovery
Environmental Chemistry
Materials Chemistry
Molecular Medicine
Molecular and Cell Biology
Nanotechnology
Radiation Chemistry
Structural Biology
Surface Science
Synthetic Chemistry
Theoretical and Computational Chemistry
Civil Engineering and Geological Sciences
Aquatic Chemistry
Bioengineering
Biological Treatment of Hazardous Waste
Computational Fluid Mechanics
Development Studies
Dynamics of Offshore Structures
Earthquake Engineering
Environmental Engineering
Environmental Mineralogy
Environmental Sensors
Finite Element Modeling
Fire Effects on Structures
Groundwater Hydrology
High and Low Temperature Geochemistry
Mantle Petrology
Materials Characterization and Durability
Multiphase Flows
Natural and Man-made Hazard Reduction
Paleontology
Progressive Collapse of Structural Systems
Structural Dynamics
Structural Engineering
Structural Health Monitoring
Structural Mechanics and Design
Structural Reliability
Tall Buildings and Long-Span Bridges
Wind Engineering
Classics
Early Christian Studies
Latin Literature
Greek Literature
Greek and Roman Civilization
Computer Science and Engineering
Algorithms and Theory of Computations
Artificial Intelligence and Computational Biology
Computationally Demanding Applications
Computer Architecture in Emergent
Technologies
Computer Systems Design
Computer Vision and Pattern Recognition
E-technologies
Systems and Networks

## Economics

Environmental Economics
History of Economic Thought
Industrial Organization
International Economics
Labor Economics
Monetary and Macroeconomics
Political Economy
Public Economics

```
Electrical Engineering
    Communication Systems and Networking
    Control Systems
    Nanoelectronics
    Optoelectronics
    Semiconductor Materials and Devices
    Signal and Image Processing
    Integrated Circuits
    Wireless Networks
English
    Old and Middle English
    Renaissance
    Restoration and 18th Century
    Romantic and Victorian
    Modern British
    Early American (to 1865)
    Middle American (from the Civil War to
        1930)
    Post 1930 American Literature
    African American
    Latino/a Studies
    Irish Studies
    Drama
    Novel
    Poetry
    Prose Fiction
    Literary Theory
    Creative Writing++
History
    Latin American History
    Medieval History
    Modern European History
    United States History
History and Philosophy of Science
    History of the Philosophy of Science
    Analytic Philosophy of Science and
        Epistemology
    History and Philosophy of Biology
        1700 to 1980
    Philosophy of Contemporary Physics
    History of Astronomy and Physics
    Medieval Natural Philosophy and
        Medicine
    History and Philosophy of Economics
    Philosophy of Mind and Neuroscience
    Social History of Medicine and
        Technology
    History and Philosophy of Mathematics
    Intellectual History of Science 1600 to
        1950
    Scientific Revolution Studies
    Science and Literature
Literature
    Classics
    East Asian Studies
    French
    German
    Irish Studies
    Italian
    Spanish (Iberian and Latin American)
    (Literatures can be studied in various
        combinations)
Mathematics
    Algebra
    Algebraic Geometry
```

Applied Mathematics
Complex Analysis
Differential Geometry
Logic
Partial Differential Equations
Topology
Medieval Studies
Art History
History
Language and Literatures
Manuscript Studies
Music
Philosophy
Theology
Peace Studies
Global Politics and International Norms
Religion and the Ethics of Conflict
Political Economy of War, Peace
and Sustainable Development
Culture, War and Peace
Philosophy
Ancient Philosophy
Contemporary European Philosophy
Epistemology
Ethics
Logic
Medieval Philosophy
Metaphysics
Modern Philosophy
Philosophy of Language
Philosophy of Mathematics
Philosophy of Mind
Philosophy of Religion
Philosophy of Science
Political Philosophy
Physics
Astrophysics
Atomic Physics
Biophysics
Condensed Matter Physics
Elementary Particle Physics
Nuclear Physics
Statistical Physics
Theoretical Physics
Political Science
American Politics (including public law)
Comparative Politics
International Relations
Political Theory
Psychology
Cognitive Psychology
Counseling Psychology
Developmental Psychology
Quantitative Psychology
Romance Languages and Literatures*
(See Literature for Ph.D. program)
Comparative Literatures
French and Francophone Studies-Middle Ages, Renaissance, 17th-century Classical, 18th-century Enlightenment,
19th Century, 20th Century
Italian Studies-Italian Literature:
Medieval, Renaissance, Modern;
Art History; Architectural History;
Film Studies; Translation; History;
Philosophy; Music

THE GRADUATE SCHOOL $\sim$ ACADEMIC REGULATIONS

Iberian and Latin American StudiesMedieval, Golden Age, Colonial Spanish-American, Modern Spanish Peninsular, Modern Spanish-American Periods; Gender Studies

## Sacred Music

Liturgical
Musical
Pastoral
Sociology
Comparative/Historical Sociology
Cultural Sociology
Education
Family
Political Sociology
Quantitative Methodology
Religion
Social Psychology
Social Stratification
Theory
Theology
Biblical Studies*
Christianity and Judaism in AntiquityHebrew Bible and Judaica, New Testament and Early Church
Early Christian Studies*
History of Christianity-Early Church, Medieval Studies, Reformation Studies, Modern Studies
Liturgical Studies
Moral Theology/Christian Ethics
Systematic Theology
Professional Studies*
(Master of Divinity Program)
Theological Studies*

* Master's programs only
+ Master's program and M.F.A. in studio art and design
++ M.F.A. in creative writing


## Academic Regulations

Please note:
The following information represents the minimum standards established by the Graduate School. Individual departments may require higher standards. Students are expected to be fully cognizant of their department's requirements.

No exceptions to the following policies and procedures will be valid without the formal written approval of the Graduate School.

## Admission to the Graduate School

Applicants for admission to the Graduate School must hold a bachelor's degree or its equivalent from an accredited American college or university or from a foreign institution of acceptable standing by the time of graduate matriculation. If at that time an admitted applicant does not hold a bachelor's degree, the Graduate School admission is void. The applicant should have earned at least a $B$ average in his or her undergraduate major courses and should meet the level of academic achievement that implies a developed ability for advanced study and independent scholarship.

An applicant may seek admission to either degree-seeking status or non-degree status in either a master's or doctoral program.

Admission to a graduate degree program is not equivalent to admission to candidacy for the degree (see "Admission to Candidacy," under master's and Ph.D. degree requirements.) It should also be noted that admission to the master's program does not automatically mean admission to the doctoral program upon completion of the master's program. A separate decision is required for continuation in the doctoral program.

## Application Requirements

An applicant for admission must complete all of the following:

1. Complete and electronically submit the online application
2. Submit a statement of intent through the online application system
3. Submit a curriculum vitae or resumé through the online application system
4. Arrange for three (3) letters of recommendation to be submitted through the online recommendation system associated with the online application
5. Submit the application fee by credit card, check, or money order using the payment system associated with the online application system
6. Request official transcripts from each post-secondary institution and have them mailed to the Office of Graduate Admissions (please note that transcripts may not be attached to the online application)
7. Arrange for the submission of official Graduate Record Examination (GRE) General Test scores
8. Arrange for the submission of official GRE Subject Test scores if required by the department
9. Arrange for submission of official Test of English as a Foreign Langauge (TOEFL) scores if the applicant's native language or language of college instruction is not English

The online application may be accessed through the Graduate School's website. To expedite the processing of applications, the online application should be completed and submitted before any supporting materials not attached to the online application are sent to the Graduate School.

Students seeking admission to more than one department, but who plan to enroll in only one, must submit separate applications for each department. Only one application fee is necessary.

The application fee must accompany the application. This fee is nonrefundable. For applications submitted by December 1 for admission
to the following fall semester, the application fee is $\$ 35$. The fee is $\$ 50$ for all applications submitted after December 1 for admission to the following fall semester. Fees may be paid by check, money order, or credit card (see online application).

Application deadlines range from January 1 to February 1 for admission to the fall semester. Applicants may visit the Graduate School's website to determine the deadline for individual programs. Unless otherwise specified, the application deadline for spring admission is November 1, though some departments have earlier deadlines. Applicants may visit the Graduate School's website to determine the deadline for individual programs. It should be noted that only a few departments offer spring admission. Therefore, applicants who wish to begin in the spring are advised to consult the department prior to submitting an application.

Beyond these Graduate School admission requirements for all graduate departments and programs, particular programs may require personal interviews and/or submission of special materials such as writing samples or portfolios. Applicants should consult the individual department or program to learn about additional requirements and submission procedures.

The Graduate Record Examination (GRE) is offered at sites in the United States and abroad. The annual schedules and other information about the GRE can be obtained online at http://www.gre.org or from Educational Testing Service (ETS), Graduate Record Examination, Box 6000, Princeton NJ 08541-6000,
USA. If you need to call about the GRE, telephone the Educational Testing Service at (609) 771-7670.

The Test of English as a Foreign Language (TOEFL) is offered several times each year at sites in the United States and abroad. Foreign students, except those noted above, must submit TOEFL scores as part of their application to demonstrate a sufficient command of English to meet the requirements of their field. If not available locally, the annual schedules and other information about the TOEFL can be obtained online at http://www.toefl.org or from Educational Testing Service (ETS), TOEFL, Box 6151, Princeton NJ 08541-6151, USA. If you need to call about the TOEFL, telephone the Educational Testing Service at (609) 771-7100.

## Admission to Multiple Degree Programs

An applicant who seeks admission to more than one master's degree program in the Graduate School in order to earn two degrees, or an applicant who seeks admission to a degree program in the Graduate School concurrently with a degree program in another school in

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the University (i.e., Law School or Mendoza College of Business) must submit a separate and complete application for each program. The applicant must also be accepted by each of the cooperating departments. The Graduate School will consider only applicants whose past academic performance indicates the potential for success in each of the programs. In consultation with the appropriate advisers from each unit, the applicant will select a plan of study acceptable to all units. The Graduate School must approve the written plan of study before the student may begin the program. No more than nine credit hours of classes from any one master's degree may be counted toward any other master's degree.

## Admission to Joint Degree Programs

It is possible for a student to pursue a program of study combining two programs and leading to a joint degree. An applicant who seeks to earn a joint degree, either master's or Ph.D., must submit a separate and complete application to each program and be accepted by both. The relevant departments must agree upon a plan of study defining what will constitute the joint degree program, and the approved written plan must be on file with the Graduate School before the student may begin the program.

## Nondegree Applicants

An applicant for admission to a non-degree program must complete all of the following:

1. Complete and electronically submit the online application
2. Submit a statement of intent through the online application system detailing the applicant's graduate plans and expectations
3. Submit a curriculum vitae or resumé through the online application system
4. Request official transcripts from each post-secondary institution and have them mailed to the Office of Graduate Admissions (please note that transcripts may not be attached to the online application)
5. Submit the application fee by credit card, check, or money order using the payment system associated with the online application system

A nondegree applicant may seek admission as a departmental non-degree student or as an unclassified, visiting, or auditing student in the Graduate School.

A departmental non-degree student is one who has been admitted to a department but does not seek an advanced degree from the University. An applicant with degree intent who lacks one or more admission requirements may be admitted temporarily to this non-degree status at the discretion of the department and with the approval of the associate dean for graduate
admissions. The student may register for one to 12 credit hours in any graduate courses for which he or she meets the course prerequisites. However, no student initially admitted to nondegree status will be admitted to degree status until all admission requirements have been satisfied. No more than 12 credit hours earned by a student while in a non-degree status may be counted toward a degree program. Admission as a departmental non-degree student does not guarantee later admission as a degree-seeking student.

An unclassified student is one who is admitted to the Graduate School in a non-degree status, but who is not a member of a particular department. Such a student may, with the approval of the Graduate School, take courses in any graduate department, subject to approval by the department. This category is usually open to non-degree students who wish to take courses in more than one department or students who have completed their degree programs, but wish to continue in the University in graduate student status. No more than 12 credit hours earned by a student while in a non-degree status may be counted toward a degree program. Admission as an unclassified non-degree student does not guarantee later admission as a degree-seeking student.

A visiting student is normally a degree student in another university who enrolls for credit in selected courses at Notre Dame. Unless otherwise arranged by the home university and Notre Dame, the visiting student is considered a non-degree student at Notre Dame and follows the same application and enrollment procedures as a non-degree student.

An auditor is a non-degree student who meets the course prerequisites but receives no academic credit. With the permission of the instructor and the department chair, a degree student also may audit courses. Audited courses may be recorded on a student's permanent record only if the student requests the instructor to record it at the beginning of the semester and if he or she attends the course throughout the entire semester. A recorded audit is graded V. Incomplete audits are not recorded. The audit grade of V cannot be changed to a credit grade.

In the academic year, full-time graduate students may audit courses without charge. Parttime graduate students who audit courses will be charged the normal audit fee of one-half the current credit hour fee.

In the summer session, there is no free audited course. Any course taken or audited in the summer session will be charged the full price.

## Acceptance

Official acceptance to the Graduate School in the academic year is granted only by the associate dean. Applicants will be informed
officially of the results of their application by a letter from the associate dean for graduate admissions. Applicants who intend to accept offers of admission are required to confirm their acceptance by returning the appropriately completed form that is supplied onlinr.

## Council of Graduate Schools Policy on Accepted Offers of Admission

In accordance with a resolution passed by the Council of Graduate Schools in the United States, the following policy is in effect:

By accepting an offer of financial aid (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year, the enrolled or prospective graduate student completes an agreement that both the student and graduate school expect to honor. When a student accepts an offer before April 15 and subsequently desires to withdraw, the student may submit a written resignation for the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer made by an institution after April 15 is conditional on presentation by the student of a written release from any previously accepted offer. It is further agreed by the institutions and organizations subscribing to this resolution that a copy of the resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer.

## Enrollment in the University

Once admitted, all degree and nondegree graduate students must enroll and register each semester at the dates and times announced by the University Registrar.

Any admitted student who fails to register and enroll for one semester or more must apply for readmission upon return. (See "Continuous Enrollment," below.)

## Full-time and Part-time Status

A full-time student is one who is working full time toward his or her degree objective. The student's department is responsible for determining who is a full-time student, and who is otherwise a part-time student.

All degree-seeking students are expected to maintain full-time status and to devote full time to graduate study. No degree student may hold a job, on or off campus, without the express permission of his or her department and the Graduate School.

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A nondegree student must register for at least nine credit hours per semester, or six in the summer session, to claim full-time status.

## Academic Good Standing

Continuation in a graduate degree program or in nondegree status, admission to degree candidacy, and graduation require maintenance of at least a 3.0 (B) cumulative grade point average (G.P.A.). A student may be dismissed from the department or program if the G.P.A. in any one semester is below 2.5 or if the G.P.A. is below 3.0 for two consecutive semesters. Some departments require higher averages for enrollment and support continuance.

An adequate G.P.A. is only one factor taken into consideration in determining a student's qualifications for an advanced degree. Degree students should be aware of their department's performance criteria. The department and the Graduate School annually evaluate each graduate student's overall performance on the basis of these criteria.

A student must be in academic good standing to be eligible for new or continued financial support.

## Continuous Enrollment

All students must enroll each semester in the academic year and register for at least one credit hour per semester to maintain student status. Continuous enrollment is met normally by both enrollment in the University and registration in a graduate-level course relevant to the student's program. A student who is concurrently pursuing degrees in the Graduate School and in another school in the University meets the continuous enrollment requirement by registering for a course in either program. Any exception to this rule, including a leave of absence, must be approved by the Graduate School. (See "Leave of Absence," below.) Degree students who have completed the course work requirement for their degree must register for at least one credit hour per semester, including the final semester or summer session in which they receive their degree. This credit hour should consist of either resident or non-resident thesis or dissertation research within their department. These students may be considered full-time students whether or not they are in residence. Students not in residence and taking one credit hour pursuant to continuous enrollment requirements are charged a special registration fee.

A student who fails to enroll and register for one semester or more must apply for readmission upon return.

Continuing students (i.e., degree-seeking students who are eligible to continue their studies in the fall semester) may have access to University facilities and services from May through August without enrolling and registering for academic credit in the summer session.

## Leave of Absence

For exceptional reasons and on the recommendation of the department, a student in good academic standing may request a leave of absence for a maximum of two consecutive semesters. A request for a leave of absence must be made before the semester in which the leave is taken, and all leaves of absence must be approved by the Graduate School. If, for some urgent reason, a student is allowed to leave the University after the beginning of the semester, the withdrawal procedure below must be followed. If at the end of the leave of absence period the student does not return, the student is considered terminated. Application for readmission is required if the student wishes to return.

In the case of a medical leave of absence, clearance from the University Health Center is required prior to readmission.

## Medical Separation from Academic Duties

Students enrolled in the Notre Dame Graduate School who wish to temporarily interrupt their programs for medical reasons must apply to the Graduate School. Students are eligible under this policy if they have a "serious medical condition." For purposes of this policy, "serious medical condition" means a medical condition that (1) requires multiple day hospitalization OR (2) renders the student unable to engage in coursework and all other Graduate School-related duties for a period of at least ten (10) calendar days. Certification by a physician that the student has a serious medical condition as defined in this policy must be submitted to the Graduate School no less than three months prior to the separation period (for childbirth and other predictable requests) or as soon as the need is foreseen (for emergency requests). In situations involving childbirth, the separation period will generally begin on the actual date of childbirth; in all cases, regardless of the nature of the medical condition, the duration of the separation will be as certified by the physician up to a maximum of six weeks. Students may utilize this medical separation policy two non-consecutive times during their graduate studies. Should students need more than six weeks at any one time, they must withdraw from the University. Leaves of absence for one semester or more for medical or other reasons are governed by the Graduate School Leave of Absence policy.

Full-time degree-seeking students in their sixth year of study or less who are receiving financial aid from the Graduate School or external funds will receive a stipend equal to their normal stipend during their period of separation, for a maximum of six weeks paid by the Graduate School. Students will retain their tuition scholarships, access to on-campus medical facilities, and all other resources available to students during the entire separation period (up to six
weeks). Students also will be deemed "continuously enrolled" at the University during the entire period of separation.

Teaching Assistant and Research Assistant duties will cease at least during the period of separation. Students are responsible for making arrangements, through their departments, to cover their duties. Students taking classes will be required to make arrangements with individual course instructors for completion of any courses in progress during the leave. Students will be granted the option to re-schedule exams, extend candidacy deadlines or other deadlines not discussed herein. Students are responsible for making arrangements to reschedule exams, extend deadlines and to make up other work not discussed herein. Unlike a regular one-semester leave, time off in conjunction with this policy will count towards the students' degree time limit of eight years and university-sponsored funding cap of six years.

## Withdrawal from the Program

To withdraw from the University before the end of the semester, a student must inform the department and the Graduate School as well as complete the notice of withdrawal. (See http:// registrar.nd.edu/Separation_Form/form.html.) For information on refunds, refer to "Tuition and Expenses."

Upon approval of the withdrawal, the University enters a grade of W for each course in which the student was registered. If a student drops out of the University without following the procedure described above, a grade of F is recorded for each course.

The credit for any course or examination will be forfeited if the student interrupts his or her program of study for five years or more.

The University reserves the right to require the withdrawal of any student when academic performance, health status, or general conduct may be judged clearly detrimental to the best interests of either the student or the University community.

## Access to Computing Services

The University of Notre Dame NetID accounts and related services are intended for faculty, staff, and currently registered and enrolled students. "A student must register and enroll at the dates and times announced by the Registrar" (Academic Code 4.1). A student who fails to register and enroll by the announced date will forfeit the right to access his or her NetID account and related services. University computing resources supplied by way of the NetID are normally available to a student for up to 60 days after his or her graduation date. A student granted a leave-of-absence would normally retain access to University computing services for up to two semesters. A student

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who is separated from the University due to an academic suspension, academic dismissal, or withdrawal will no longer have access to University computing services, unless an extension has been approved by the dean of his or her college. A student attending Notre Dame for the summer only, with a nondegree seeking status, will normally retain access to University computing service for up to 60 days after the August graduation date. A student who is separated from the University for other reasons will no longer have access to University computing services.

## Registration and Courses

## Maximal Registration

During each semester of the academic year, a graduate student should not register for more than 15 credit hours of graduate courses, i.e., the 60000 through 90000 -level courses. In the summer session, a graduate student should not register for more than 10 credit hours.

## Course Numbers

Courses numbered 60000-69999 are typically first-level graduate courses. Qualified advanced undergraduates may be admitted to these classes with the permission of the instructor and the approval of the chair. Courses numbered 70000 and above are advanced graduate courses open only to graduate students who have completed the prerequisites.

The advanced undergraduate courses numbered $40000-59999$ may, with the approval of the department chair and the Graduate School, be taken to satisfy up to 10 hours of graduate credit requirements. Departments may place additional constraints on the use of $40000-59999$ level courses to meet their degree requirements.

No graduate credit is allowed for courses below the 40000 level.

## Add/Drop Policy

A student may add courses through the first seven class days of the semester. A student may add courses after this time only on recommendation of the department and with approval of the Graduate School.

A student may drop courses at their discretion through the first seven class days of the semester. To drop a course after this period and up to the midsemester point (see the Graduate School calendar for the exact date), a student must have the approval of the chair of the department offering the course, of his or her adviser, and of the Graduate School; however, no tuition adjustment will be made after the seventh class day of the semester. A course may be dropped after the midsemester point only in cases of serious physical or mental illness. Courses dropped after this period will be
posted on the student's permanent record with the grade of W.

A course taken for credit can be changed to an audit course after the midsemester point only in cases of serious physical or mental illness.

## Grades

Listed below are graduate grades and the corresponding number of quality points per credit hour.

| A | 4 |
| :--- | :--- |
| A- | 3.667 |
| B+ | 3.333 |
| B | 3 |
| B- | 2.667 |
| C+ | 2.333 |
| C | 2 |
| F | 0 |
| I | 0 (Until Incomplete is removed) |
| NR | Not reported |
| S | 0 Satisfactory |
| U | 0 Unsatisfactory |
| V | 0 Auditor (graduate students |
|  | $\quad$ only) |
| W | 0 Discontinued with permission |

Quality point values are used to compute the student's G.P.A. The G.P.A. is the ratio of accumulated earned quality points to the accumulated earned semester credit hours. G.P.A. computation takes into account only those grades earned in Notre Dame graduate courses by students with graduate status at Notre Dame. For courses taken in a department or college in the University, but outside the Graduate School, or taken outside the University, the grade will not be included in the G.P.A. computation.

The grades of C - and D are not awarded in the Graduate School.

A student receives the temporary grade of I when, for acceptable reasons, he or she has not completed the requirements for a 60000 - or higher-level graduate course within the semester or summer session. No grade of I can be given for courses below the 60000 level or to graduating students in the final semester or final summer session of a terminal degree program.

The student then must complete the course work for a grade prior to the beginning of the final examination period of the next semester in which the student is enrolled. If a student receives an I (Incomplete) for a summer session course, he or she must complete the course work for a grade before the final examination period begins for the next semester or summer session (whichever comes first) in which the student is enrolled.

The University temporarily computes this grade as the equivalent of an F in calculating the G.P.A. When the student fulfills the above
requirements, the I is replaced by the new grade. Faculty will be given 30 days from the last day of classes to turn in the grade change form to the Graduate School. Should the student not complete the course work as required, the I will convert to an F on the transcript.

The department and the Graduate School will review a student who receives more than one I in a semester or an I in two or more consecutive semesters, to determine his or her eligibility for continued support and enrollment.

The grades of $S$ and $U$ (Satisfactory and Unsatisfactory) are used in courses without semester credit hours, as well as in research courses, departmental seminars, colloquia, workshops, directed studies, field education, and skills courses. These courses, if given the grade of S, do figure in a student's earned semester credithour total but do not figure in the computation of the G.P.A. A grade of $U$ will not count toward the student's earned semester credithour total, nor will it figure in the computation of the G.P.A.

The grade of V (Auditor) has neither qualitypoint nor credit-hour value. It is the only grade available to the registered auditor. The audit must be requested before the seventh class day of the semester; the auditor should attend the course throughout the entire semester, and it is made part of his or her permanent record. The grade of V cannot be changed to a creditearning grade. Information about declaring an audit is posted at http://registrar.nd.edu/audit. shtml.

The grade of W (Discontinued with permission) is given for a course that a student is allowed to drop after the midsemester point.

## Transfer Credits

A department may accept course work completed at another accredited university toward meeting its degree requirements. A student may transfer credits earned at another accredited university only if: (1) the student is in degree status at Notre Dame; (2) the courses taken are graduate courses appropriate to the Notre Dame graduate program and the student had graduate student status when he or she took these courses; (3) the courses were completed within a five-year period prior to admission to a graduate degree program at Notre Dame or while enrolled in a graduate degree program at Notre Dame; (4) grades of B (3.0 on 4.0 scale) or better were achieved; and (5) the transfer is recommended by the department and approved by the Graduate School.

These five requirements also apply to the transfer of credits earned in another program at Notre Dame.

The University considers a request for credit transfer only after a student has completed one semester in a Notre Dame graduate degree

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program and before the semester in which the graduate degree is conferred. The university of origin must submit two transcripts directly to the Notre Dame Graduate School. Credits not earned on the semester system, such as trimester and quarter-hour credits, will be transferred on a pro rata basis.

A student transferring from an unfinished master's program may not transfer more than six semester credit hours into either a Notre Dame master's or Ph.D. program.

If the student has completed a master's or Ph.D. program, he or she may transfer up to nine semester credit hours to a Notre Dame master's program and up to 24 semester-credit hours to a Notre Dame Ph.D. program.

Occasionally, a student may need to do dissertation research at another institution. Normally, the student would register for the appropriate number of credit hours of research at Notre Dame. If the student does not enroll at Notre Dame and expects to count research hours earned elsewhere toward the Notre Dame degree, the student must have the approval of the department and the Graduate School in advance. The University requires similar prior approval for formal courses taken elsewhere and applied to the degree program. Twenty-four credit hours, including research credit hours, is the maximum acceptable for transfer into a Notre Dame doctoral program.

No grades of transferred courses are included in the student's G.P.A.

## Academic Integrity

Integrity in scholarship and research is an essential characteristic of our academic life and social structure in the University. Any activity that compromises the pursuit of truth and the advancement of knowledge besmirches the intellectual effort and may undermine confidence in the academic enterprise. A commitment to honesty is expected in all academic endeavors, and this should be continuously emphasized to students, research assistants, associates, and colleagues by mentors and academic leaders.

The procedures for ensuring academic integrity in the Graduate School are distinct from those in the Undergraduate Code of Honor. The following apply to both degree-seeking and non-degree-seeking students.

Violations of academic integrity may occur in classroom work and related academic functions or in research/scholarship endeavors. Classroom-type misconduct includes the use of information obtained from another student's paper during an examination, plagiarism, submission of work written by someone else, falsification of data, etc. Violation of integrity
in research/scholarship is deliberate fabrication, falsification, or plagiarism in proposing, performing, or reporting research or other deliberate misrepresentation in proposing, conducting, reporting, or reviewing research. Misconduct does not include errors of judgment, errors in recording, selection, or analysis of data, differences in opinions involving interpretation, or conduct unrelated to the research process. Misconduct includes practices that materially and adversely affect the integrity of scholarship and research.

Any person who has reason to believe that a violation of this policy has occurred shall discuss it on a confidential basis with the department chair or director of the appropriate institute. If a perceived conflict of interest exists between the chair/director and the accused, the next highest academic officer shall be notified of the charge. The chair/director shall evaluate the allegation promptly. If it is determined that there is no substantial basis for the charge, then the matter may be dismissed with the fact of dismissal being made known to the complainant and to the accused if he or she is aware of the accusation. A written summary of charges, findings, and actions shall be forwarded to the dean of the Graduate School as a matter of documentation. Otherwise, the chair will select an impartial panel consisting of three members, one of whom may be a graduate student, to investigate the matter. The chair will inform the accused of the charges. The panel will determine initially whether to proceed directly to a hearing to further investigate the case, or to dismiss the charges. If the panel decides to proceed directly to a hearing, the hearing will be held within 10 days of the original notification. If the panel decides that further investigation is necessary, it shall immediately notify the chair. If it decides that a hearing is not warranted, all information gathered for this investigation will be destroyed. The utmost care will be taken to minimize any negative consequence to the accused.

The accused party must be given the opportunity to respond to any and all allegations and supporting evidence at the hearing. The response will be made to the appointed panel. The panel will make a final judgment, recommend appropriate disciplinary action, and report to the chair in writing. The report will include all of the pertinent documentation and will be presented within 30 days after meeting with the accused. Copies of the report are to be made available to the accused, the chair, and the dean of the Graduate School. If a violation is judged to have occurred, this might be grounds for dismissal from the University; research/scholarship violations might be reported to the sponsor of the research effort (e.g., NSF, NIH, Lilly Foundation, etc.), if appropriate.

If the student chooses to appeal, he or she must address the appeal in writing to the dean of the Graduate School within 10 days. The
student has the right to appear before the dean or his or her delegate. The dean may decide to appoint an ad hoc committee to handle this appeal, if deemed necessary.

Violations of academic integrity by individuals who are not students are governed by different rules; students who are working on externally sponsored programs may also be covered by sponsor-mandated rules. Contact Dr. Richard A. Hilliard, director of research compliance, (574) 631-5386, for further information.

The penalty for a student who admits wrongdoing should be determined by the graduate committee of the student's department or program.

## Academic Ombudsperson

The dean of the Graduate School has appointed an academic ombudsperson in the Graduate School to be available to graduate students who want to confidentially discuss problems they are having in their programs. The ombudsperson can provide the student with options for resolving the problem. The Graduate School's academic ombudsperson is Dr. Barbara M. Turpin, associate dean.

## Grievance and Appeal Procedures

Students follow the grievance and appeal procedures of the department in which they are studying. Where department procedures are not clear, students contact the department chair and/or the director of graduate studies. Appeals beyond the department are made directly to the dean of the Graduate School. Instructions for how to appeal to the dean can be found at http://graduateschool.nd.edu/pdf/ brochure.grad.appeal.pdf. Students may seek advice from the associate dean of the Graduate School who serves as academic counselor before beginning a formal process within the department or an appeal to the dean.

## Requirements for the Master's Degree

In addition to the following Graduate School requirements, individual departments may have higher standards. Students are expected to know their departmental requirements.

## Credit Hours

The number of semester credit hours of course work for the master's degree is specified by the student's department. Students in a research program must also complete the research requirements of the department. (See also "Transfer Credits," above.)

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## Residency

The minimum residency requirement for the master's degree is registration in full-time status for one semester during the academic year or for one summer session.

## Foreign Language Requirement

The Graduate School does not require foreign language reading proficiency for the master's degree. However, some departments do have this requirement. Students should consult their departments concerning this requirement.

## Degree Eligibility

Failure to complete all requirements for the master's degree within five years results in forfeiture of degree eligibility.

A master's program that is pursued during the summer and the academic year must also be completed within five years.

A student attending summer session only must complete all requirements within seven years.

## Thesis Directors

Each student is assigned an adviser from the time of enrollment. This may initially be the director of graduate studies, but an individual adviser or thesis director will be chosen as soon as practicable, following the department's policies.

Advisers and thesis directors are normally chosen from the teaching and research faculty of the student's department. There also may be one co-director chosen from the faculty outside (or within) the student's department. In exceptional cases, a student may choose a thesis director from the Notre Dame teaching and research faculty outside the department. Arrangements for extra-departmental directors or co-directors must be consistent with departmental policies and must be approved by the department.

## Master's Examination

By the end of the term following completion of the course work required by the department, the degree candidate must have taken an oral and/or written master's examination demonstrating mastery in his or her field. Failure in either one or both parts of the examination results in automatic forfeiture of degree eligibility, unless the department recommends a retake. If a retake is recommended, it must be completed by the end of the following semester. The Graduate School allows only one retake of the master's examination.

Some departments have an equivalent requirement in lieu of the master's examination. Students are advised to be cognizant of their respective departmental requirements with regard to the master's examination or its substitute.

A doctoral student may receive the master's degree without taking the master's examination on the recommendation of the department and completion of (a) the course work required by the department for the master's degree and (b) all written parts of the doctoral candidacy or Ph.D. qualifying examination. Departments may have additional criteria or may choose not to offer a master's degree in this manner; students should consult the departmental guidelines.

## Admission to Candidacy

To qualify for admission to candidacy, a student must be in a master's degree program. He or she must have been enrolled in the program without interruption and must maintain a minimum cumulative G.P.A. of 3.0 in approved course work. A student who seeks admission to candidacy in a research master's program must also demonstrate research capability and receive departmental approval of his or her thesis proposal.

Admission to candidacy is a prerequisite to receiving any graduate degree. It is the student's responsibility to apply for admission by submitting the appropriate form to the Graduate School office through the department chair. The applicable deadline is published in the Graduate School calendar.

## Thesis Requirement

The thesis is the distinctive requirement of the research master's program. With the approval of his or her adviser, the student proposes a thesis topic for departmental approval. The approved topic is researched and the results presented under the supervision of a thesis director.

The thesis director indicates final approval of the thesis and its readiness for the readers by signing the thesis. The candidate then delivers the number of signed copies of the completed thesis required by the department to the department chair. These copies are distributed to the two official readers appointed by the department. Readers are appointed from among the regular teaching and research faculty of the student's department. The appointment of a reader from outside the student's department must have the department's approval. The thesis director may not be one of the official readers. Each reader must unconditionally approve the thesis and the department should promptly report the results to the Graduate School.

## Submitting the Thesis

The format of the thesis should follow the guidelines established by ProQuest. These guidelines can be found in the Graduate School's office or online at http://graduateschool.nd.edu.

For formatting assistance beyond these guidelines, students should follow the formatting custom in their field. Students may also consult the Graduate School's Guide for Formatting and Submitting Dissertations and Theses, available at the Graduate School office and online at http://graduateschool.nd.edu. When the Graduate School performs its formatting check, it will primarily make sure that the document conforms to the ProQuest guidelines. It is the student's responsibility to submit a clean and professional-looking thesis.

When the thesis is given to the readers, the candidate should also give a complete copy to the Graduate School office for a preliminary review of the format. This copy may be submitted electronically as a PDF or delivered as a printed document.

After the readers approve the thesis and any necessary changes have been made, the candidate must then present the final version of the thesis to the Graduate School for final approval and submission on or before the date specified in the Graduate School calendar. Candidates should be cognizant of deadlines for graduation established by the Graduate School and the department.

The thesis may be submitted either in electronic (PDF) form or in printed manuscript form. Only the official submission will be accepted by the Graduate School.

To submit the thesis electronically, the candidate must upload one complete PDF copy to the Hesburgh Library's Electronic Dissertation and Thesis database at http://etd.nd.edu, and provide two signed title pages and any other necessary forms to the Graduate School.

To submit printed copies of the thesis, the candidate must present two clean copies, each signed by the thesis director. The candidate pays the binding costs for the two official copies required by the Graduate School.

Candidates must check with their departments for any additions to the Graduate School requirements.

Should a candidate decide to microfilm a thesis, information concerning the ProQuest Information and Learning Master's Publishing Program may be obtained from the Graduate School office.

## ACADEMIC REGULATIONS

## Requirements for the Doctor of Philosophy Degree

The goal of the University in its Ph.D. programs is to develop productive scholarship and professional competence in its students. In addition to a broad acquaintance with the historical and contemporary state of learning, the University encourages its students and faculty to make contributions to the advancement of their respective fields.

In addition to the following Graduate School requirements, individual departments may require higher standards. Students are expected to know their department's requirements.

## Credit Hours

The number of semester credit hours of formal courses, directed studies, and research is specified by the student's department. (See also,
"Transfer Credits," above.)

## Residency

The minimum residency requirement for the Ph.D. degree is full-time status for four consecutive semesters (may include the summer session).

## Foreign Language Requirement

This requirement varies from department to department, in both the choice of language and the degree of proficiency required. Students should consult their department concerning this requirement.

## Award of Master's Degree to Doctoral Students

A doctoral student may receive the master's degree without taking the master's examination on the recommendation of the department and completion of: (a) the course work required by the department for the master's degree and (b) all written parts of the doctoral candidacy or Ph.D. qualifying examination. Departments may have additional criteria, or may choose not to offer a master's degree in this manner; students should consult the departmental guidelines.

## Degree Eligibility

The student must fulfill all doctoral requirements, including the dissertation and its defense, within eight years from the time of matriculation. Failure to complete any of the Graduate School or departmental requirements within the prescribed period results in forfeiture of degree eligibility.

## Advisers and Dissertation Directors

Each student is assigned an adviser from the time of enrollment. This may initially be the director of graduate studies, but an individual adviser or dissertation director will be chosen as soon as practicable, following the department's policies.

Advisers and dissertation directors are normally chosen from the teaching-and-research faculty of the student's department. There also may be one co-director chosen from the faculty outside (or within) the student's department. In exceptional cases, a student may choose a dissertation director from the Notre Dame teaching and research faculty outside the department. Arrangements for extra-departmental directors or co-directors must be consistent with departmental policies and must be approved by the department.

## Candidacy Examination

Normally, the candidacy examination is passed, and the dissertation topic approved, by no later than the student's eighth semester of enrollment. Failure to meet this deadline may lead to discontinuation of Graduate School funding.

The examination consists of two parts: a written component and an oral component. The written part of the examination normally precedes the oral part. It is designed, scheduled, and administered by the department. The oral part of the examination is normally taken after the completion of the course work requirement. The oral part, among other things, tests the student's readiness for advanced research in the more specialized area(s) of his or her field. In total, the examination should be comprehensive. Successful passage indicates that, in the judgment of the faculty, the student has an adequate knowledge of the basic literature, problems, and methods of his or her field. If the proposal defense is part of the oral, it should be a defense of a proposal and not of a completed dissertation.

A board of at least three voting members nominated by the department and appointed by the Graduate School administers the oral part of the examination. (The department may require larger committees.) Normally, this board has the same membership as the student's dissertation committee. Board members are normally chosen from the teaching and research faculty of the student's department, although if approved by the department, a faculty member from another department or another institution may also be appointed to the committee.
A faculty member appointed by the Graduate School from a department other than the student's department chairs the examination board. This chair represents the Graduate School and does not vote. After completion of the examination, the chair calls for a discussion followed by a vote of the examiners. On a board of three, two votes are required to pass. On a board of
four, three votes are required to pass. If a department chooses to have five members, four votes are required to pass. The chair should, before the examination begins, confirm departmental regulations for conduct of the examination and voting procedures. The chair sends a written report of the overall quality of the oral examination and the results of the voting immediately to the Graduate School.

In case of failure in either or both parts of the doctoral candidacy examination, the department chair, on the recommendation of a majority of the examiners, may authorize a retake of the examination if this is permitted by departmental regulations. An authorization for retake must be approved by the Graduate School. A second failure results in forfeiture of degree eligibility and is recorded on the student's permanent record.

## Admission to Candidacy

Admission to candidacy is a prerequisite to receiving any graduate degree. To qualify for admission to doctoral candidacy, a student must:

1. be in a doctoral program;
2. have been continuously enrolled in the program without withdrawal;
3. complete the departmental course work requirement with a cumulative average of 3.0 or better;
4. pass the written and oral parts of the doctoral candidacy examination, and have the dissertation proposal approved (if this is not part of the candidacy exam) by the end of the eighth semester of enrollment.

It is the responsibility of the student to apply for candidacy admission by submitting the appropriate form to the Graduate School office through the department chair.

## The Dissertation

In continuing consultation with the dissertation director, the candidate explores research areas in his or her field to formulate a dissertation proposal. The methods of approval of the dissertation proposal are determined by the individual departments.

The department chair or director of graduate studies will appoint a dissertation committee consisting of the dissertation director and at least two readers. (The department may require larger committees.) Normally, the committee is drawn from the membership of the student's oral candidacy board. The student's department must approve the appointment of committee members from outside the department and/or the University.

The candidate delivers typed copies of the finished dissertation, signed by the director, to the department chair for distribution to the readers.

At the same time, the candidate should also give a complete copy to the Graduate School, where it will be reviewed for compliance with the formatting guidelines. (See "Submitting the Dissertation" below.)

Readers normally have two to four weeks to read the dissertation, decide whether it is ready to be defended, and so indicate on the appropriate form to the Graduate School. Reader approval of the dissertation for defense does not imply reader agreement or support; it implies reader acknowledgment that the dissertation is an academically sound and defensible scholarly product. Only a dissertation that has been unanimously approved for defense by the three readers may be defended.

Even though the dissertation has been approved for defense, revisions may be required. If defects in the dissertation come to light at the defense, the candidate may be asked to revise the dissertation before it is accepted by the Graduate School and the degree is conferred. In that case, it will be the responsibility of the dissertation director, or such person as the committee may appoint, to report to the Graduate School that such revisions have been completed satisfactorily.

## Defense of the Dissertation

In defending the dissertation, the doctoral candidate supports its claims, procedures, and results. The defense is the traditional instrument that enables the candidate to explore with the dissertation committee the dissertation's substantive and methodological force. In this way, the candidate and the committee confirm the candidate's scholarly grasp of the chosen research area.

The format of the defense is determined by the department with the Graduate School's approval. The defense is chaired by a faculty member who is appointed by the Graduate School from a department other than the candidate's department. This chair represents the Graduate School and does not vote. After the examination is completed, the chair calls for a discussion followed by a vote of the dissertation committee. At least two votes out of three (or three votes out of four, or four votes out of five) will be required to pass a candidate. The chair sends a written report of the overall quality of the defense and the voting results immediately to the Graduate School.

In case of failure of the defense, on the recommendation of a majority of the examiners, another opportunity to defend may be authorized if this is permitted by departmental regulations. An authorization for a second defense must be approved by the Graduate School. A second failure results in forfeiture of degree eligibility and is recorded on the candidate's permanent record.

## Submitting the Dissertation

To receive the degree at the next commencement, the doctoral candidate who has successfully defended his or her dissertation must submit it to the Graduate School on or before the deadline published in the Graduate School calendar. Candidates should be cognizant of deadlines for graduation established by the Graduate School and the department.

To be accepted by the Graduate School, the dissertation should be prepared according to the formatting guidelines established by ProQuest. These guidelines can be found in the Graduate School office or online at http:// graduateschool.nd.edu.

For formatting assistance beyond these guidelines, students should follow the formatting custom in their field. Students may also consult the Graduate School's Guide for Formatting and Submitting Dissertations and Theses, posted online at http://graduateschool.nd.edu. When the Graduate School performs its formatting check, it will primarily make sure that the document conforms to the ProQuest guidelines. It is the student's responsibility to submit a clean and professional-looking dissertation.

When the dissertation is given to the readers, the candidate should also give a complete copy to the Graduate School, where it will be reviewed for compliance with the style manual. This copy may be submitted electronically as a PDF or delivered as a printed document.

After successfully defending the dissertation and making any necessary changes, the candidate must present the document to the Graduate School for final approval and submission.

The dissertation may be submitted either in electronic (PDF) form or in printed manuscript form. Only the official submission will be accepted by the Graduate School.

The candidate may submit the dissertation electronically by uploading one complete PDF copy to the Hesburgh Library's Electronic Dissertation and Thesis database at http://etd.nd.edu, and providing two signed title pages and any other necessary forms to the Graduate School.

Alternatively, the candidate may present two clean, printed copies of the dissertation, each signed by the dissertation director. The candidate pays the binding costs for the two official copies required by the Graduate School.

The Graduate Council requires that all doctoral dissertations be microfilmed by ProQuest Information and Learning. In addition to any other required forms or surveys, the candidate must submit a completed Microfilming Agreement form to the Graduate School's dissertation editor, who handles this publication requirement for the candidate.

## Financial Information

## Tuition and Expenses

Please note: The following tuition, fees, housing, and living costs are for the academic year 2009-2010. Prospective applicants and students are urged to find out the exact costs at the time of application or registration.

## Tuition

For the full-time graduate student, the tuition for the academic year 2009-2010 is $\$ 38,270$.
Tuition for the part-time student is $\$ 2,104$ per semester credit hour.

A full-time graduate student may audit courses without charge during the academic year. Fulltime for a degree-seeking student is defined by the student's program. Any course taken or audited in the summer session will be charged the full price.

## Academic Year Fees

- Technology Fee: $\$ 250^{*}$
- Health Center Access Fee: $\$ 150^{* *}$
- Graduate Student Activity Fee: $\$ 65^{* * *}$
* The technology fee provides partial funding for the Universitys enterprise-wide technology infrastructure, which provides all students access to the Internet, e-mail, course ware, campus clusters, ResNet, and a wide array of the latest software. This fee provides for the growth in student services, such as course and degree requirements, Web Registration, and value-added Internet-related capabilities.
> ** The health center access fee provides students access to all services at the University Health Center and University Counseling Center, including 24-hour medical care and counseling/mental health assistance, and alcohol and drug education programs, as well as health education and wellness programs.
> *** Graduate Student Activity Fee is the responsibility of the student.


## Financial Arrangements

Tuition and fees, as well as any required deposits, are payable in advance at the beginning of each semester. Please note that Notre Dame does not accept credit cards for payment of tuition and fees. Tuition and/or fees not covered by scholarship are the responsibility of the student.

A student may not register for a new semester or receive transcripts, certificates, diploma, or any information regarding his or her academic record until all prior accounts have been settled in full.

## FINANCIAL INFORMATION

## Withdrawal Regulations

Any student in the Graduate School who at any time within the school year wishes to withdraw from the University should contact the Office of the Registrar. To avoid failure in all classes for the semester and in order to receive any financial adjustment, the withdrawing student must obtain the appropriate clearance from the dean of his or her college and from the assistant vice president for residence life.

On the first day of classes, a full tuition credit will be made. Following the first day of classes, the tuition fee is subject to a prorated adjustment/credit if the student: (1) withdraws voluntarily for any reason on or before the last day for course discontinuance at the University; or (2) is suspended, dismissed, or involuntarily withdrawn by the University, for any reason, on or before the last day for course discontinuance at the University; or (3) is later obliged to withdraw because of protracted illness; or (4) withdraws involuntarily at any time because of military service, provided no credit is received for the classes from which the student is forced to withdraw.

Upon return of the student forced to withdraw for military service, the University will credit the student's account for that portion of tuition charged for the semester in which he or she withdrew and did not receive academic credit.

Room and board charges will be prorated throughout the entire semester.

Students receiving University and/or Federal Title IV financial assistance who withdraw from the University within the first sixty percent $(60 \%)$ of the semester are not entitled to the use or benefit of University and/or Federal Title IV funds beyond their withdrawal date. Such funds shall be returned promptly to the entity that issued them, on a pro rata basis, and will be reflected on the student's University account.

This withdrawal regulation may change subject to federal regulations. Examples of the application of the tuition credit calculation are available from the Office of Student Accounts upon request.

## Housing

Phone: (574) 631-5878
Web: http://orlh.nd.edu
University housing for married, families and single students is available on or adjacent to the campus.

Accommodations for students with families are available in University Village, a complex of 100 two-bedroom apartments (limited four-bedroom apartments) with washer/dryer, renting for $\$ 515-\$ 780$ per month, excluding electricity.

The Cripe Street Apartments, 24 one-bedroom units, are available from $\$ 625$ per month, excluding electricity. A deposit of one month's rent is required.

Accommodations for approximately 140 full-time, degree-seeking single graduate men and women are available in the 36 -unit O'Hara-Grace Graduate Residence adjacent to the campus. Each apartment has a kitchen, one-and-one-half baths, living, and bedroom accommodations for four students, renting for $\$ 490$ a month (rent includes utilities, local phone and internet connection). Many general and departmental activities are held in Wilson Commons, a center for graduate students located next to the townhouses. The Fischer Graduate Housing apartment complex offers apartments with a kitchen, one full bath, and living and bedroom accommodations for two single students, renting for $\$ 585$ a month (rent includes utilities, local phone and internet connection). A deposit equal to one month's rent is required. Deductions may be set up for any student receiving a stipend. This is handled at the Office of Student Accounts, 100 Main Building, (574) 631-7113.

## Health Insurance

Phone: (574) 631-6114
Web: http://uhs.nd.edu
The student will be automatically enrolled in the University-sponsored plan, and the charge for the premium will be placed on the student's account prior to the start of the academic year. At the beginning of each academic year, the opportunity is provided to show proof of comparable health insurance coverage. If University Health Services accepts this coverage, the charge for the University sponsored-plan will be removed from the student's account by University Health Services.

Information regarding the University-sponsored plan is mailed to the student's home address in July. Additional information is available in University Health Services by contacting the Office of Insurance and Accounts at (574) 631-6114 or referring to the UHS website: http://uhs.nd.edu.

The cost of the student premium for the 2009-2010 academic year (effective August 15,2009 , to August 14, 2010) is $\$ 1,239$.

Premium information for dependent coverage may be found on the University Health Services website.

The Office of Student Accounts will offer students receiving a stipend from the University the option of paying the premium through deductions from the academic year salary checks.

## Health Insurance Subsidy Program

The Graduate School has a program to subsidize the student premium of Universitysponsored student health insurance. The 70\% subsidy for 2009-2010 is $\$ 867$ for degreeseeking students on full stipend support. The insurer for the student health insurance policy is Aetna.

## Eligibility

A full stipend is defined as the minimum department-based stipend for each program. Students should contact their academic department with questions about their subsidy eligibility or funding levels. The Graduate School provides the departments with the subsidy level and eligibility criteria each year.

## Procedure

No application for the subsidy is required. University Health Services, the Graduate School, Financial Aid and Student Accounts will automatically process the subsidy for eligible students in October.

## Tax Obligation

Because students receiving a stipend are not classified as employees of the University, the health insurance subsidy is a taxable benefit. In this case, however, it is regarded as 'taxable but not reportable.' The University will not withhold money from a student's pay, nor will it report the subsidy to the Internal Revenue Service. Students who receive the subsidy are obligated to report it on their tax returns.

## Worker's Compensation Insurance

Students injured while performing assigned duties in University laboratories are covered by worker's compensation insurance as if they were Notre Dame employees. During a period of temporary inability to perform duties as a result of such injuries, workers compensation provides for continuation of $66.6 \%$ (to state limits) of usual income after seven days have passed. Income beyond the limits set by workers compensation is subject to the discretion of department chairs where support is from funds allocated by the Graduate School. Income beyond workers compensation is subject to the discretion of principal investigators and the guidelines of external sponsors where support is from funds provided by research grants.

## Travel Accident Insurance

Students injured while traveling to conferences or on other University business which has been approved by the student's department chair are covered by Notre Dame travel accident insurance. Compensation in set amounts is available for death or loss of arms or legs. Medical expenses in excess of other insurance are paid up to a maximum dollar amount.

## FINANCIAL INFORMATION

## Travel Reimbursement

Reimbursement is subject to University travel policy, which can be found on the Controller's website, under Policies and Procedures: http://controller.nd.edu

Applications for the following grants can be found on the Resources for Current Students page on the Graduate School website at http://graduateschool.nd.edu.

\author{

- GSU Gordon Conference Presentation Grant Program <br> - Zahm Research Travel Grant <br> - Downes Memorial Grant to Attend Seminars and Workshops
}


## Financial Support

Exact amounts for the following aid will vary with the type of support and the department. Exact figures can be obtained from the particular department to which the student has been admitted. Initiation and continuation of financial support depends on the student's maintaining good academic standing.

Only full-time, degree-seeking students are eligible for support. Recipients of financial support such as assistantships or fellowships usually may not accept additional appointments. Rare exceptions are made only on the recommendation of the respective department.

## Categories of Support

The University offers four types of support: fellowships, teaching and research assistantships, and tuition scholarships. Students may receive one type of support or a combination of types.

## Fellowships

Fellowships provide a tuition scholarship and a stipend for full-time study by students admitted to graduate programs. The department usually provides tuition and stipend support for the student in good standing once the fellowship expires.

Applicants for admission are automatically considered by their academic department for all of the following University, endowed, and awarded fellowships.

## Presidential and Premier Fellowships

The Graduate School awards 12-month Presidential and Premier Fellowships to highly qualified first-time applicants who are nominated for the awards by departmental admissions committees. Some fellowships require U.S. citizenship.

## Assistantships

Graduate Assistantships
Graduate assistantships are available for qualified students in all doctoral programs.

## Research Assistantships

Research assistantships provide support to qualified recipients under research programs sponsored by government, industry, or private agencies.

## Tuition Scholarships

The University offers full or partial tuition scholarships to students qualifying on the basis of merit.

## Employment and Loans

## Office of Financial Aid

Telephone: (574) 631-6436
Fax: (574) 631-6899
E-mail: finaid@nd.edu
Web: http://financialaid.nd.edu
In addition to the student support programs described above, students may apply for federal financial aid opportunities, which include student loans and campus employment. The Office of Financial Aid, located in 115 Main Building, administers all loan and employment eligibility. Please note that while the Office of Financial Aid administers employment opportunities, graduate student employment is also subject to approval by the Graduate School.

In order to be eligible for federal student assistance, a student must be a U.S. citizen, permanent resident, or eligible noncitizen. In general, students must be classified as degree seeking to participate in the federal aid programs and be enrolled at least half-time. The Free Application for Federal Student Aid (FAFSA) is the annual application that must be completed and forwarded to the processing center, listing Notre Dame (Federal School Code 001840) in the appropriate section. Priority processing consideration will be given for those applicants submitting the FAFSA by February 28 for the following fall semester. Applicants should be prepared to submit a signed photocopy of their federal income tax returns and W-2 forms directly to the Financial Aid Office upon request.

## Maintaining Financial Aid Eligibility

Recipients of federal financial aid must comply with the standards of progress set by their respective departments for their particular programs of study. When failure to maintain progress results in the possible loss of federal aid eligibility, the Office of Financial Aid will notify students in writing. Appeals indicating any mitigating circumstances must be made in writing to the assistant director of financial aid.

## Federal Stafford Loan

The terms of the need-based Subsidized Federal Stafford Loan Program require that the student borrower repay, with interest, this source of financial assistance. This program is referred to as "subsidized" because of the interest subsidy being paid by the federal government to the lender while the student is enrolled in school as well as during the six-month grace period following enrollment.

The terms of the non-need-based Unsubsidized Federal Stafford Loan Program require that the borrower repay, with interest, this source of financial assistance. This program is referred to as "unsubsidized" because the federal government is not paying the in-school interest to the lender while the student is enrolled in school. Interest on Unsubsidized Stafford Loans begins to accrue after disbursement of the loan funds; however, the student may choose to have the payment of the interest deferred during enrollment and later capitalized (added to the princi$\mathrm{pal})$ at the time repayment begins.

The following is a list of additional terms of the subsidized and unsubsidized Stafford Loan, subject to revision by federal law:

- Origination fees from $0 \%$ to $1 \%$ for Stafford Loan offered by the University's suggested lenders
- Fixed interest rate at $6.8 \%$
- Repayment begins six months after the student ceases to be enrolled in school on at least a half-time basis and generally extends over a 10-year period
- Annual borrowing limits for graduate students: $\$ 20,500$ for graduate/professional students. The annual subsidized maximum is $\$ 8,500$, and the annual unsubsidized maximum equals $\$ 20,500$ minus the subsidized amount for the student.
- Maximum aggregate borrowing limit: $\$ 138,500$, with no more than \$65,000 subsidized

The amount a student may borrow from the Stafford Loan Program may be limited by other financial assistance received by the student. Financial assistance includes, but is not limited to, the following: fellowships, assistantships, University scholarships, tuition remissions, all types of grants, residence hall appointments, campus employment, and any loan received under the auspices of the Higher Education Act as amended. Should a student's eligibility be impacted at any time during the loan period, the Stafford Loan will be subject to adjustment. All eligibility changes will be reported to the student's lender.

## Federal Perkins Loan

The Federal Perkins Loan is a need-based loan made by the University. The Perkins Loan Program requires that the student borrower repay, with interest, this source of financial assistance. The following are some additional terms, subject to revision by federal law, of the Perkins Loan available to graduate students:

- Zero interest while the student is enrolled in school on at least a half-time basis and during the nine-month grace period following enrollment
- $5 \%$ fixed interest rate during repayment
- No origination fee or insurance fee
- Repayment of principal and interest begins nine months after the student ceases to be enrolled in school on at least a half-time basis and generally extends over a 10 year period; payments are made on a quarterly basis
- \$8,000 annual borrowing limit
- $\$ 60,000$ maximum aggregate


## Private Student Loans

After exhausting the opportunities available from the federal aid programs, many students will consider private loan programs as a source of funding.

The terms and conditions of these credit-based loan programs vary, and as such, students are encouraged to review the details of the programs before selecting a private loan program. Private loans are not eligible for loan consolidation programs made available for federal student loans. Interest rates, fees (both at the time of borrowing and at repayment), credit checks, and annual and aggregate loan limits require careful evaluation by the student as a consumer.

Additional information regarding private student loans for graduate students is available at http://www.nd.edu/~finaid/loans/graduate/ private.shtml or through the Office of Financial Aid at (574) 631-6436 or finaid@nd.edu.

## Research Opportunities and Support

## Office of Research

Telephone: (574) 631-7432
Web: http://www.nd.edu/~research/
University policies on research and other sponsored programs are maintained on the Office of Research's Web site at http://www. nd.edu/ $\sim$ research.

## Graduate Student Union's Gordon Conference Presentation Grant Program

Awards from the Graduate Student Union (GSU) will subsidize, in part, expenses incurred by graduate students for presenting the results of original research at professional conferences. All graduate students who are enrolled in the Graduate School and are members of the GSU are eligible. Applicants must attend the conference before applying for the grant, and applications must be submitted within 60 days of travel. For more information, please visit the Grants and Fellowships section of the GSU web site at http://www.gsu. nd.edu.

## Graduate Student Research Support

The Joseph F. Downes Memorial Fund was established in 1973 to assist graduate students with costs associated with attendance at workshops and seminars.

The Albert Zahm Research Travel Fund subsidizes, in part, travel expenses incurred by graduate students for purposes directly related to their research. First priority will be accorded doctoral students who have been admitted to candidacy and whose research is the basis for their dissertation. Research master's degree students who have completed all requirements except the thesis will receive second priority.

Applications for both the Downes Memorial Grant and the Zahm Research Travel Grant are available under Financial Support and Reimbursement on the Resources for Current Students page of the the Graduate School's website: http://graduateschool.nd.edu.

## Oak Ridge Associated Universities

Web: http://www.orau.org
Since 1992, students and faculty of the University of Notre Dame have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 96 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

For more information about ORAU and its programs, contact the Office of Research at Notre Dame (574) 631-7432, or Monnie E. Champion, ORAU corporate secretary, at (865) 576-3306; or visit the ORAU home page.

## Postdoctoral Scholars

Telephone: (574) 631-7283
Web: http://www.nd.edu/ postdoc/
Postdoctoral Scholar is a University status distinct from faculty or student status. Appointments are made by the Graduate School for all academic units of the University.

The paragraphs below provide summary information on each of the major appointment categories.

## Research Associates

Appointments to non-faculty research positions with the title Senior Research Associate, Postdoctoral Research Associate, or Research Associate are made by the Graduate School in departments, institutes, and centers throughout the University. The length of appointment varies but is normally for one year; renewal is upon mutual agreement between the appointee and the faculty adviser. Research associates receive salary and substantial benefits. Application should be made directly to the faculty member with whom the applicant wishes to pursue studies.

## Teaching Scholars

Appointments to non-faculty teaching positions with the title Teaching Scholar are made by the Graduate School in departments throughout the University. The length of appointment is normally for one year; renewal is upon mutual agreement between the appointee and the chair/director of the appointing unit. Teaching scholars receive salary and substantial benefits. Application should be made directly to the chair/director of the appropriate unit.

## Visiting Scholars

Appointments to non-faculty research positions with the title Visiting Scholar are made by the Graduate School in departments, institutes, and centers throughout the University. The length of appointment varies but is normally for a semester or a year; renewal is upon mutual agreement between the appointee and the chair/director of the appointing unit. Visiting scholars receive no salary and only limited benefits. Application should be made directly to the chair/director of the appropriate unit.

## Research Visitors

The Graduate School appoints students enrolled in graduate or undergraduate degree programs at other universities to research positions with the title Research Visitor for the purpose of using University libraries or consulting with a faculty member. The length of appointment varies but is normally for a semester or a year. Research visitors occasionally
receive a stipend, but there are no benefits. Application should be made directly to the faculty member the student wishes to consult, or to the chair of the appropriate department.

## University Resources

## Academic Resources

## University Libraries

Telephone: (574) 631-6258
Web: http://www.nd.edu/ ~ndlibs
The University Libraries' system consists of 11 libraries, which house most of the books, journals, manuscripts, and other non-book library materials available on the campus. Currently, the collections contain nearly 3 million volumes, more than 3 million microform units, more than 3,000 electronic titles, and over 20,800 audiovisual items to support the teaching and research programs. In the past year, the libraries added over 59,475 print volumes in addition to those in other formats and received about 11,200 serial titles.

Through the Notre Dame Web site, users have immediate access to the University Libraries' catalog, an array of electronic periodical indexes and full-text documents, and professionally developed subject guides to local and Internet-based resources. From their computers, users may request individualized reference assistance, place Interlibrary Loan requests, suggest titles for purchase, and recall or renew charged materials.

The Theodore M. Hesburgh Library, a 14story structure, serves as the main library and its collections are of primary interest to the students and faculty of the College of Arts and Letters and the Mendoza College of Business. The tower also contains the University Archives; the Medieval Institute Library, with the Frank M. Folsom Ambrosiana Microfilm and Photographic Collection, and the Anastos Byzantine Collection; the Mark K. Davis Drawings Collection; and the Jacques Martain Center.

Orientation sessions are presented by the library staff at the start of each semester and the summer session and are available to interested students and faculty.

A limited number of closed carrels are available to advanced graduate students upon application to their academic departments. Lokmobiles, a type of locker on wheels, are also available to graduate students upon application to the Circulation Desk.

The Thomas Mahaffey, Jr. Business Information Center, located in the Mendoza College of Business, is an innovative, primarily electronic facility supporting existing and emerging
programs and research. This state-of-the-art facility is equipped with 32 individual workstations and one group learning area (providing handicapped access and fully equipped for instructional support), and it provides access to and assistance in the use of a broad range of bibliographic, numerical, full-text and graphic databases in business and related disciplines.

The Kellogg/Kroc Information Center is located in 318 Hesburgh Center for International Studies and supports its work in international studies.

The Art Slide Library, located in 110 O'Shaughnessy Hall, became a branch library in July 2002. Created to support the Art, Art History and Design Department, the Art Slide Library provides photographic images for teaching, research, student slide presentations and historical documentation. The slide collection consists of approximately 230,000 slides available to all University faculty, students and visiting patrons. Web sites have been created to support the art history courses. An in-house database facilitates access to the collection for teaching and research purposes.

The remaining seven libraries were established to meet the teaching and research needs of the College of Engineering, the College of Science, the School of Architecture, and the Law School. These libraries generally contain the more recent literature and the Hesburgh Library retains the older materials.

The Architecture Library, located in Bond Hall, has a collection of over 27,540 volumes and over 91 currently received paper journals and five e-journals pertaining to various aspects of architecture.

The Chemistry/Physics Library, located in 231 Nieuwland Science Hall, maintains a collection of some 40,956 volumes and currently receives about 59 paper journals and 934 e-journals in all fields of chemistry and physics. It can provide database searches and bibliographic instruction.

The Engineering Library, located on the first floor of the Fitzpatrick Hall of Engineering, has a collection of 50,179 volumes and approximately 25,000 microform units and receives over 270 paper journals and about 1,450 e -journals related to engineering. The facility provides database searches as well as bibliographic instruction.

The Life Sciences Library, located on the first floor of the Paul V. Galvin Life Sciences Center, houses an estimated 26,000 volumes and receives approximately 329 print journals and 921 e-journals in the fields of biology, life sciences, and medicine. It offers database searching and bibliographic instruction.

The Mathematics Library, located in 001 Hayes-Healey Center, has a collection esti-
mated at 49,085 volumes and subscribes to about 168 paper journals and 373 e-journals, which deal with all areas of pure and applied mathematics.

The Radiation Chemistry Data Center, located in 105 Radiation Research Building, has a collection of approximately 4,810 volumes and receives 7 paper journals and 20 e-journals in radiation chemistry. It serves many of the information service needs of the radiation chemical community throughout the United States and abroad.

Although it is not administratively a part of the University Libraries' system, the Kresge Law Library, located in the Law School, is available for use by all students, faculty, and staff. It has a collection of over 612,000 books and microform equivalents of law and law-related material and subscribes to more than 6,500 serial publications.

The University, along with more than 208 major universities, colleges, and research libraries, maintains a membership in the Center for Research Libraries, which has access to over 3.5 million volumes of materials and 1.5 million microforms important to research. The University Libraries were elected to the Association of Research Libraries in 1962.

## Information Technologies

Telephone: (574) 631-5600
Web: http://oit.nd.edu
The Office of Information Technologies (OIT) supports six public access computing labs campus-wide, as well as the graduate student lab in the Hesburgh Library. These computing labs feature approximately 400 computers running Macintosh, Windows, and Linux operating systems, and high-quality printing for all students, faculty, and staff. Hours of operation are available at http://oit.nd.edu/labhours.

The OIT supports and maintains over 120 technology-enhanced classrooms across campus, with 77 rooms in DeBartolo Hall alone. Technology-enhanced classrooms feature ceiling-mounted LCD projection, VHS and DVD playback devices, laptop connection points, and a user-friendly A/V control system. Lecture-style classrooms include a lectern computer, while seminar rooms are laptop-ready. The OIT offers a classroom support 'hotline' (631-8778) with technicians responding immediately to in-room technical problems.

Video services are also available at Notre Dame. Residents of Fischer and O'Hara-Grace graduate residences, University Village, and Cripe Street apartments can order cable service directly from Comcast. Many classrooms have basic cable service that includes a variety of channels with educational content (CSPAN, CSPAN2, PBS, EWTN, Discovery, History). To culturally enrich our educational environ-

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ment, the OIT augments the basic channel lineup available in classrooms with international content downloaded via satellite from SCOLA (TV programming from around the world in native languages) and French and Russian language channels. Additional information about cable television is available at oit.nd.edu/ cabletv. The OIT also offers videoconferencing, using either portable equipment or in the Access Grid facility located in the Center for Research Computing (CRC). Using videoconferencing technology, faculty and graduate students can teach a class from a remote location, make guest lecturers from off campus available to students, collaborate on research, conduct dissertation defenses, and do graduate advising when participants are in multiple locations. More information about videoconferencing is at http://oit.nd.edu/videoconferencing.

On-campus computer users are linked by a robust multi-gigabit fiber-optic network backbone that provides access to on-campus electronic resources as well as off-campus access to commodity Internet and research networks. The University is a member of Internet2, which offers high bandwidth access to about 200 leading research universities and supercomputing centers.

Wired 100MB Ethernet access to the campus network and the Internet is available in graduate residences. An affinity plan with Comcast provides high-speed Internet access at reduced rates for students, faculty and staff who live off campus. See http://oit.nd.edu/cabletv/comcast_affinity.shtml for information. Individuals with wireless-capable computers also can connect via NOMAD, the University's wireless network that serves most of the buildings on campus. More information about Notre Dame's NOMAD WiFi network is available at http://oit.nd.edu/nomad. A distributed cellular antenna system in various campus locations makes excellent cellular telephone coverage for the major carriers available to the Notre Dame community. Information about coverage, carriers, and discount plans is available at http://oit. nd.edu/cellular.

The Center for Research Computing (CRC) was established in 2006 to serve the Notre Dame research community. The CRC is a joint effort of the OIT and Office of Research with the College of Science, College of Engineering, and the College of Arts and Letters as founding members. The CRC is connected via optical fiber cable to a supercomputing cluster operated by the CRC at South Bend's historic Union Station. A platform for the exchange of expertise and ideas from many disciplines, the CRC is a resource for training on the use of high performance computing tools and is the liaison to the Northwest Indiana Computational Grid (http://nwicg.org), a federally funded collaborative initiative operated by Notre Dame, Purdue, and the Department of

Energy. Located in the Notre Dame IT Center Building, the CRC also features an Access Grid and videoconference center designed for collaboration with other research labs and universities. For more information, go to http:// crc.nd.edu.

All Notre Dame students receive an e-mail account, networked file space, and quotas for network printers. Students can purchase computers, printers, software and other computer accessories at Notre Dame's on-campus computer store (go to http://oit.nd.edu/store), located in Room 103 Information Technology Center. Educational discounts are available for many products. The ND Computer Store also operates the Service Center, a fee-for-service repair facility, open to faculty, staff, and students of the Notre Dame community. The Service Center (see oit.nd.edu/support/service) offers vendor-authorized warranty repairs on Apple, Dell, Gateway, and IBM computers, and various printers and peripherals. Non-warranty service is available, and is not limited to these product lines. The Service Center is located in Room 102 ITC.

The OIT Help Desk is located in Room 128 DeBartolo Hall. Trained support technicians answer questions and guide Notre Dame computing users in diagnosing and resolving problems by phone, e-mail, and in person. Help Desk hours are Monday through Friday 8:00 a.m. - 5:00 p.m. (closed Wednesdays from 12:00 p.m. - 1:30 p.m.). During the academic year when classes are in session, the Help Desk offers additional phone support hours. The Help Desk also provides support through an online knowledge base where members of the Notre Dame community can obtain answers to known computer problems, enter a question for OIT staff to address, or verify the status of problems they have submitted to the Help Desk. Contact the Help Desk at 574-6318111 or by sending e-mail to oithelp@nd.edu. For more information about the Help Desk, see http://oit.nd.edu/helpdesk.

The OIT offers technical training opportunities for faculty, staff, and students through a variety of training options. More information on training opportunities for graduate students is on the Web at http://oit.nd.edu/training/ Graduate.shtml.

All individuals who use University computers and technology resources are responsible for complying with the policy on Responsible Use of Information Technologies at Notre Dame. The full text of this policy is available at http:// oit.nd.edu/policies/rup.shtml.

## Institute for Scholarship in the Liberal Arts

Telephone: (574) 631-5730
Web: http://www.nd.edu/~isla
The goal of the Institute for Scholarship in the Liberal Arts (ISLA) is to help build, sustain, and renew a distinguished faculty in the arts, humanities, and social sciences, and to enhance the intellectual life on campus. The institute does this in several ways.

ISLA provides grants for faculty research, travel to international conferences, curriculum development, publication subventions, and miscellaneous research expenses.

The institute is the college's clearinghouse for information, advice, and assistance in finding and obtaining grant funds for any academic purpose. Institute staff assist faculty in several ways: advising faculty regarding the content of grant proposals; assisting in the preparation of proposal budgets; critiquing draft proposals; and ushering proposals through the administrative review process. In support of this effort, ISLA maintains a grant reference library that includes computerized grant search databases, and hosts several grant proposal workshops during the year.

The institute offers a variety of other faculty development activities, such as workshops on academic writing and publishing with an academic press.

## Kaneb Center for Teaching and Learning

Telephone: (574) 631-9146
Web: http://kaneb.nd.edu
The John A. Kaneb Center for Teaching and Learning provides the means for faculty and graduate teaching assistants (TAs) to hone the art of teaching that has characterized a Notre Dame education over the years. Located in DeBartolo Hall, the Kaneb Center serves faculty as they evaluate and improve their teaching and provides workshops and other programs for TAs to help them develop their teaching skills and function effectively in their teaching roles. The center also helps faculty and TAs select and integrate technology to facilitate student learning.

Upon completing a series of five or more TA workshops on teaching, TAs receive a "Striving for Excellence in Teaching" certificate. There is also a certificate available for "Teaching Well with Technology" and the "Advanced Teaching Scholar Certificate." Details on all certificates are available from http://kaneb.nd.edu/ta/.

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In collaboration with departments, colleges, and other University units, the center provides analysis and critiques of classroom instruction, assistance with departmental and college planning, assistance in developing teaching techniques, and University-wide stimulation for reflection on teaching and learning.

## The Snite Museum of Art

Telephone: (574) 631-5466
Web: http://www.nd.edu/-sniteart
The Snite Museum of Art provides opportunities to enjoy, respond to, learn from and be inspired by original works of art. As an integral unit of the University of Notre Dame, the Museum supports teaching and research; furthers faith-based initiatives for greater internal diversity and service to the external community; and reflects the traditions and values of the University.

With nearly 24,000 artworks in the permanent collection, the museum features collections which place it among the finest university art museums in the nation.

The Mesoamerican collection covers three thousand years of Mexican art and highlights the mother culture of Mexico-the Olmec civilization. The Olmec collection has been acclaimed as the finest in the nation and is complemented by extensive holdings of human figurines and ritual ballgame sculpture.

The Kress Study Collection has been the foundation for developing a collection of Italian Renaissance art, which today includes paintings by Fra Paolino, Barbari, Bedoli and Ghirlandaio. The Baroque collection features works by Claude, Bloemaert, Conca, Bourdon and Ruisdael. Selections from the Feddersen Collection of Rembrandt etchings are exhibited frequently; the 18th-century collection includes such masters as Boucher, Vigée-Lebrun, Reynolds, Pittoni and de Mura.

The critically acclaimed John D. Reilly Collection of Old Master Drawings includes examples by Tintoretto, Tiepolo, Guardi, Watteau, Fragonard, Ingres, Géricault, Millet and Degas. The Noah and Muriel Butkin Collection of 19th-Century French Art is another one of the museum's strengths, featuring paintings and oil sketches by Corot, Huet, Daubigny, Courbet, Gérome and Boudin. A selection of sculptures by such notable artists as Chaudet, Daumier, Carpeaux, Carrier-Belleuse and Rodin complements the range of paintings on view.

The Decorative Arts Gallery spans the 18th through 20th centuries and exhibits early porcelains from such major factories as Sèvres and Meissen. Exceptional ceramics, furniture, glass, and silver pieces represent both the Arts and Crafts and Art Nouveau styles of the 19th
century in addition to the Art Deco and Bauhaus modern movements. Twentieth centurydesigned pieces by Wright, Stickley, Tiffany and Hoffmann are also on view.

The Janos Scholz Collection of 19th-century European photography contains some 5,500 images of persons and places taken during the first 40 years of camera use. This collection is complemented by images from the United States, Latin America and Asia.

Traditional African art is highlighted by artworks that feature divinities from the Yoruba pantheon, complemented by African-American sculpture that includes those deities in New World belief systems. A large and varied collection of 16 th- to 20 th- century pipes demonstrates innovative and elegant design, and reflects the importance of smoking as a prestige activity.

Native American art focuses on 19th-century, Plains-painted war records and clothing, painted ceramics from the pre-contact Southwest, and cotton and wool textiles from late 19thcentury and early 20th-century pueblo cultures of the Southwest. Artworks from California, Alaska, the Midwest, Northeast, and Pacific Northwest are also on view.

The American collection has 19th-century landscapes by Durand, Inness and Hassam, and portraits by Eakins, Sargent and Chase. Among highlights of the West and the Southwest regions are paintings by Higgins, Ufer, Russell and Remington. It also includes examples of contemporary Native American art.

Twentieth-century styles and movements are seen in paintings by Miro, O'Keeffe, Avery, Glackens, Gottlieb, and Scully. Modern sculptures by Barlach, Zorach, Cornell, Calder and Rickey complement the paintings and drawings.

Croatian-American sculptor Ivan Meštrović, who taught at Notre Dame from 1955 until his death in 1962, created many works that remain on campus. Major pieces can be seen in the museum, at the Eck Visitor Center, and in the Basilica of the Sacred Heart.

Loan exhibitions from major museums and private collections, in addition to exhibitions mounted by the Snite, are presented in the O'Shaughnessy, Ivan Mestrovic Studio and Scholz Family Works-On-Paper Galleries, as is the annual exhibition of student art by candidates for the M.F.A. and B.F.A. degrees. Special events and programs include lectures, recitals, films, and symposia held in the Annenberg Auditorium.

Museum education programs are overseen by two curators of education who offer numerous programs for two distinct audiences-one composed of the local community and school-
children, and the second being Notre Dame faculty and students. Campus programs include custom-designed curriculum structured tours and Spanish and French language tours.

## Interdisciplinary and Specialized Research Centers and Institutes

In pursuance of its public service commitment, the University, assisted by various private foundations and federal agencies, maintains several interdisciplinary and specialized research institutes. Some of these are listed below. For a description, see the website of the Office of Research at http://www.nd.edu/ research.

University institutes, centers, and special programs include:

Center for Biocomplexity
Center for Environmental Science and Technology
Center for Ethics and Culture
Center for Flow Physics and Control
Center for Microfluidics and Medical Diagnostics
Center for Nano Science and Technology
Center for Research Computing
Center for Social Concerns
Environmental Research Center UNDERC (with the Dept. of Biological Sciences)
Erasmus Institute
Institute for Church Life
Institute for Educational Initiatives
Institute for Latino Studies
Joint Institute for Nuclear Astrophysics
Keck Center for Transgene Research
Kellogg Institute for International Studies
Keough-Naughton Institute for Irish Studies (with the Dept. of Irish Studies)
Kroc Institute for International Peace Studies
Medieval Institute
Nanovic Institute for European Studies Radiation Laboratory

## Inter-University Visitation Program

The Midwest Catholic Graduate Schools (MCGS) is a consortium of the Catholic universities of the Midwest that have significant doctoral programs. In addition to Notre Dame, the members are Loyola University of Chicago, Marquette University, and Saint Louis University.

A degree-seeking graduate student at an MCGS university, after initiating a program of studies at the "home university," may with appropriate approvals take course work or pursue research at one of the other three institutions ("host universities") as a visiting student. Procedures have been introduced to facilitate such visits. The student registers at both the home and the host universities. Tuition is assessed at the home university at its rate. Registration entries and final grades are forwarded from the

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host to the home university for listing on the student's permanent record.

Inter-university visitation makes it possible for students to take advantage of courses or research opportunities offered by the other three institutions that might not be readily available at the home university. Thus, the program expands the choices available to MCGS students for shaping a degree program.

Interested students should review the graduate bulletins and class schedules of the host universities and consult with their advisers and major-field directors.

To participate, a student must complete an "Application for Inter-university Visitation" and secure the necessary approvals from the home institution. Then the graduate dean of the host university must approve the visitation. Finally, an "Intra-MCGS Enrollment Form" must be completed for each course to be taken at the host institution.

Participation is restricted to those fields of study that are under the academic jurisdiction of the graduate deans at both the home and the host institutions. A degree-seeking student must first have completed at least the equivalent of one full semester at the home university. No more than nine credit/semester hours of courses from host institutions can form part of a degree program at the home institution. Interested students may obtain further information and application forms from the Graduate School, 502 Main Building. Nondegree or transient students at the home institution may not participate in inter-university visitation.

## Other Facilities and Services

## Campus Ministry

Telephone: (574) 631-7800
Web: http://www.nd.edu/~ministry
Notre Dame is a Catholic university, which extends a welcome and our desire to be of service to students of all denominations and faith traditions.

Through the programs offered by Campus Ministry, we hope to offer opportunities for students to deepen their faith, to develop a spirituality that will serve them well as adult believers, and to discuss the religious and ethical aspects of questions that are essential for all of us.

Pastoral needs of graduate students are met in a variety of ways. Liturgies, prayer services, retreats, and spiritual counseling are available through personnel at University Village and at the Fischer-O'Hara-Grace Graduate Residences as well as through the offices of Campus Ministry. Dinners with faculty and departmen-
tal graduate students on issues of faith and the professional life are offered during the year. There is a chapel at Fischer Graduate Residences for the use of graduate students with daily and Sunday Masses and opportunities for sacramental reconciliation.

Campus Ministry offers programs in marriage preparation and family life, retreats, faith sharing, sacramental preparation, and pastoral counseling. It coordinates liturgies in the Basilica of the Sacred Heart and in the residence hall chapels. Graduate students are welcome to participate in these celebrations and to serve as Eucharistic ministers, lectors, or members of the Notre Dame liturgical choirs and music groups. Campus Ministry prepares a listing of all Catholic Masses offered each week at the Basilica of the Sacred Heart and in the residence halls. In addition to this, lists of local Protestant churches, as well as synagogues and mosques, are mailed to all graduate students at the beginning of the academic year with times of services and telephone numbers to call for transportation.

Campus Ministry offices are located in the Coleman-Morse Center and in 103 Hesburgh Library Concourse.

## Campus Security

Administrative Telephone: (574) 631-8338
General/Non-Emergency: (574) 631-5555
On-Campus Emergency: 911
Web: http://ndsp.nd.edu
The security of all members of the campus community is of paramount concern to the University of Notre Dame. On the Notre Dame Security/Parking Department website, you will find crime bulletins, suggestions regarding crime prevention strategies and important policy information about emergency procedures, reporting of crimes, law enforcement services on campus, and information about support services for victims of sexual assault.

## Child Care

Telephone: (574) 631-3344
An on-campus childcare center for the children of faculty, staff, and students was opened at Notre Dame in 1994. The Early Childhood Development Center (ECDC) provides a play-oriented learning curriculum that fosters a child's understanding of self, others, the world, and problem solving. Literature, creative dramatics, music, play, and art are integrated into the daily schedule. The six-classroom center is staffed by 20 full-time employees, including six lead teachers who hold at least a bachelor's degree. Notre Dame and Saint Mary's College students serve as part-time teacher-assistants.

The program serves children ages two to six during the school year and two to nine in the summer. A number of full- and part-time schedules are offered to meet varying family needs, and the weekly cost of the program is tied to family income. ECDC also operates a childcare program at Saint Mary's.

Call for more information or to get on the waiting list.

## Disability Services

Telephone: (574) 631-7157 (voice), (574) 631-7173 (TTY)

Web: http://www.nd.edu/ osd
Disability Services provides a variety of services to ensure that qualified students with disabilities have access to the programs and facilities of the University. Services do not lower course standards or alter essential degree requirements, but instead give students the opportunity to demonstrate their academic abilities. Students can initiate a request for services by registering with the Sara Bea Learning Center for Students with Disabilities and providing information that documents their disability.

While the services or accommodations provided depend on the student's disability and course or program, some of the services that have been used include:

- extended time on exams and/or separate testing rooms
- textbooks in an alternate format
- readers, note takers, and academic aides
- screening and referral for diagnostic testing for a learning disability
- housing modifications
- assistive technology

For more information please contact the Disability Services office at the Sara Bea Learning Center for Students with Disabilities 574-6317157 or showland@nd.edu.

## Food Services

Phone: (574) 631-5000
Web: http://food.nd.edu
All graduate students, whether they live on campus or off campus, may purchase meal plans for the University dining halls. A variety of options are available in 2008 - 2009. Students may pick from 10 different meal plans providing a variety that can meet any schedule and any budget.

For added flexibility, students may also choose from our Domer Dollar or Flex Point programs. Each option allows for greater flexibility, safety, and convenience because the student never has to carry cash to dine in any of Food Services' operations. Visit the Card Services Office Web page to learn more about meal

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plans, Flex Points, and Domer Dollars (http:// food.nd.edu) or call the Card Services Office at the South Dining Hall: (574) 631-7814.

## Career Services

Telephone: (574) 631-5200
Web: http://careercenter.nd.edu
The Career Center at Notre Dame offers students diverse and comprehensive services, including individual advising and counseling, dossier and credential file services, career assessment inventory testing, group workshops, videotape mock interviews, and more.

Programs of particular relevance to graduate students include

- How to prepare a curriculum vitae
- Job search strategies for Ph.D.s in industry
- How to improve presentation skills
- How to network effectively

In addition to a wide variety of reference materials available in its Flanner Hall offices, the center also provides an online resource, Go IRISH (Internet, Recruiting, Interviewing, Scheduling, Hotlink), that allows students to pursue internships, sign up for interviews, and research careers.

## Health Services

Telephone: (574) 631-7497/7567
Web: http://uhs.nd.edu
The University Health Center provides comprehensive treatment of illness and injuries to all students enrolled at the University. The services provided include an ambulatory clinic, pharmacy, laboratory, x-ray facilities, physical therapy, and an inpatient unit. Allergy and travel immunization services are also provided.

There is no fee to see the University physicians or nurses. Students must pay for prescriptions, over-the-counter medications, supplies, and specially prescribed treatments/procedures. A statement of the charges for services rendered will be provided at time of service or mailed to the student, enabling them to file for personal insurance reimbursement. Most charges are covered under the University-sponsored student insurance plan, and the Health Center clerical staff files those claims.

The ambulatory clinic services are available on a walk-in or scheduled basis. Allergy and immunization shots must be scheduled. Referrals are made to local physicians for consultation and treatment of special cases. Inpatient beds are available for students during the fall and spring semesters when prescribed by a University physician.

Registered nurses provide 24-hour-per-day care. There are no inpatient room and board fees for on-campus students. Off-campus students pay a nominal inpatient room and board fee. All inpatient students pay for their laboratory tests, medications, and treatments.

Students covered by the school sponsored student health insurance plan must use Memorial Hospital for inpatient or outpatient hospital services.

Laboratory services are provided on site through a satellite facility of the South Bend Medical Foundation, a large local laboratory that also serves the local hospitals. Physical Therapy services are provided by McDonald's Physical Therapy. These services are covered by the school sponsored insurance when prescribed by a UHS physician.

In case of emergency, the University Security Department provides for transportation of students to local hospitals. Local ambulance services are readily available. Transportation to local physicians' offices for care that is not an emergency is provided by University Health Services. Hours of transportation are limited to 12:15 p.m. to 5 p.m., Monday through Friday, during the academic year when the University is in session.

All student health records are kept confidential. No information is released to anyone, including parents and University authorities, without the student's prior permission. In the event of emergency requiring hospitalization, when it is impossible to obtain a student's permission, a University physician or the hospital will notify a parent or legal guardian.

## International Student Services and Activities

Telephone: (574) 631-3825
Web: http://www.nd.edu/ - issa
International Student Services and Activities, also known as ISSA, supports and advises the international student community of Notre Dame. ISSA is a department of Student Affairs and consists of two offices: ISSA-Programs and the Immigration Services Office (ISO).

ISSA-Programs provides support services and cultural programs. Services include the following: pre-arrival correspondence and orientation for new international students; general advising for individuals and international student clubs; and information and event updates through newsletters and a listserv. Programs include the Family Friendship Program, Conversation Exchange Partners, and International Coffeehouse. ISSA-Programs also works with university departments and local resources
to address international student issues. ISSAPrograms is located in 204 LaFortune (http:// www.nd.edu/~issa).

The ISO provides assistance and advice for U.S. visa-holding undergraduates and graduate students at Notre Dame. The ISO helps educate and remind all international students about U.S. immigration rules and responsibilities that apply to them, as well as deadlines and benefits they should know. The ISO also helps process documents relating to an international student's lawful status in the U.S. Like ISSA-Programs, the ISO offers information and event updates through newsletters and a listserv. The ISO is located separately from ISSA-Programs in 121 Main Building (http:// www.nd.edu/-isvfsa).

ISSA staff are deeply committed to fostering a campus environment that welcomes the international student community and promotes cross-cultural interaction and understanding at Notre Dame.

## Multicultural Student Programs and Services

Telephone: (574) 631-6841
Web: http://www.nd.edu/~msps
The Multicultural Student Programs and Services office encourages and supports traditionally underrepresented students in using all academic and leadership opportunities at the University. The office focuses on student leadership development skills, provides networks for internships and summer research positions, and offers diversity and multicultural educational programming for the entire campus. While working with 30 ethnic organizations, Multicultural Student Programs and Services collaborates with other academic and student affairs departments, the Student Union Board, and Student Government to ensure representation of the total student body in programming efforts.

In conjunction with Student Affairs, the office sponsors an annual fine arts lecture series, which addresses various issues impacting historically underrepresented groups. This series serves as a medium to begin dialogue on commonalities, differences, and interests. Another major programming effort is the MSPS Study Break to permit administrators and undergraduate and graduate students an opportunity to interact in an informal atmosphere. The MSPS Building Bridges Program provides firstyear students with mentors who are faculty, administrators, upperclass MSPS scholars, and upperclassmen. The participants are exposed to career and graduate school initiatives, scholarships, and University awards. For further information, contact the office in the Intercultural Center, 210 La Fortune Student Center.

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## Parking

Telephone: (574) 631-5053
Web: http://ndsp.nd.edu/parking.html
Students must register vehicles operated or parked on campus. Information about traffic and parking regulations and vehicle registration is available from the Parking Services office, Hammes Mowbray Hall.

Online vehicle registration is available through iNDCARS on http://inside.nd.edu.

## University Counseling Center

Telephone: (574) 631-7336
Web: http://www.nd.edu/~ucc
The University Counseling Center (UCC) offers professional individual and group counseling services for degree-seeking students. The UCC is devoted to meeting student needs and assisting with their problems and concerns. These concerns might include interpersonal relationships, personal growth and well-being, stress management, self-esteem and confidence, social/sexual difficulties, performance enhancement, time management, life and career planning, academic difficulties, sexual assault, anxiety, depression, alcohol/drug abuse, and eating disorders. The UCC also offers services especially for graduate students. Every fall and spring the UCC offers a graduate student therapy group that meets on a weekly basis. In addition, the UCC staff are available to present workshops and programs for graduate school departments and student groups, such as programs for the Graduate Student Union's Health and Wellness Fair.

The UCC is staffed by licensed clinical psychol-ogists, counseling psychologits, an addiction specialist, clinical social workers, and pre-doctoral interns and counselors who are supervised by professional psychologists, a consulting psychiatrist, and a consulting nutritionist. The UCC operates under an ethical and legal code of strict confidentiality.

The UCC also provides consultation to the University community. Faculty and staff as well as students may consult with the UCC staff in regard to situations related to students and student-life problems. For non-emergency questions or concerns about students, faculty and staff may call UCC's "Warm Line" service at 631-7336 from 9:00-5:00 p.m. Monday through Friday. We offer this service to encourage faculty and staff to think about calling our staff when concerned about a student before an emergency arises. However, for cases of immediate crisis, twenty-four hour emergency service is also available by calling 631-7336 and asking to speak to the emergency on-call therapist.

Professional services are usually by appointment and can be arranged either in person or by telephone. Services at the UCC are offered on a minimal fee scale of $\$ 4$ per session. Students are offered unlimited credit and can defer payment. If fees still pose a problem, arrangements will be made. There is no charge for the initial appointment. The center is open Monday through Friday from 9:00 a.m. to 5:00 p.m.

For information or an appointment call 6317336. The UCC web site contains on-line self help brochures, current events, and tips for making referrals: http://www.nd.edu/-ucc.

# The Division of Engineering 

## Aerospace and Mechanical Engineering

## Chair:

John E. Renaud
Director of Graduate Studies:
Timothy Ovaert

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Location: 365 Fitzpatrick Hall
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## The Program of Studies

The Department of Aerospace and Mechanical Engineering offers graduate programs of study and research leading to the degrees master of science in aerospace engineering, master of science in mechanical engineering, master of engineering in mechanical engineering, and doctor of philosophy. In addition, a combination master of engineering/ juris doctor degree program is available to Notre Dame law students.

For those students seeking a master's degree, the programs aim at proficiency and creative talent in the application of basic and engineering sciences to relevant problems in the two engineering disciplines. The doctoral program strives to prepare students for creative and productive scholarship. It is designed to suit each student's interests and gives students the opportunity to conduct individual research under the supervision of the department faculty.

Students in either the master's degree or the doctoral degree programs must satisfy departmental and University course requirements along with the residence requirement.

Every degree-seeking student is required to participate in the academic programs of the department by performing a teaching-related assignment.

Current research efforts are within the areas of aerospace sciences, biomechanics and biomaterials, mechanical systems, robotics and design, solid mechanics and materials, and thermal and fluid sciences.

## Aerospace Sciences

The aerospace sciences area emphasizes both the theoretical and the experimental aspects of aeroacoustics, aero-optics, aerospace systems design, high-lift aerodynamics, gas turbine engines, compressors, turbines, low Reynolds-number aerodynamics, low speed aerodynamics, particle dynamics, flow control, transonic, supersonic and hypersonic flows, wind energy and vortex aerodynamics.

## Biomechanics and Biomaterials

The biomechanics and biomaterials area offers opportunities for both basic and applied research using both experimental and computational techniques. Research focuses on the design and manufacture of orthopaedic devices, biological material characterization, novel biomaterials, biocompatability, tribology, tissue engineering, mechanobiology, human body kinematics, and computational biomechanicals. AME faculty also participate in the interdepartmental Bioengineering Graduate Program, which allows students to pursue a Ph.D. degree in Bioengineering.

## Mechanical Systems, Robotics and Design

Research in this area is in both the theoretical and the experimental aspects of computer-aided design and manufacturing, design for manufacturing, design optimization, model-based design, reliability, dynamic and control systems, vision-based control mechanism and machine theory, robotics, and tribology.

## Solid Mechanics and Materials

Research in this area focuses on the theoretical, experimental, and computational aspects of coupled field phenomena in continuum mechanics, cyclic plasticity, damage mechanics, dynamic deformation and fracture, fatigue crack initiation, fracture analysis of aircraft structures, high temperature fatigue of engineering alloys, inelastic buckling, interface fracture mechanics, modeling of composite and fused deposition polymeric materials, and structural stability.

## Thermal and Fluid Sciences

Experimental and theoretical research in this area is conducted in boundary layer phenomena, chaos in fluid systems, computational fluid mechanics, detonation theory, droplet sprays, fire research, flu-id-structure interaction, flow control, hydronics,
hydrodynamic stability, industrial energy conservation, microfluid mechanics, molecular dynamics, multiphase and buoyant flows, reacting flows, turbulent flows, and solidification of liquid metals.

## Faculty

Hafiz Atassi, the Viola D. Hank Professor
Stephen M. Batill, Professor
Hsueh-Chia Chang, Concurrent Professor
Thomas C. Corke, Director of Hessert Laboratory for Aerospace Research and the Clark Equipment Professor

Patrick F. Dunn, Professor
David Go, Assistant Professor
J. William Goodwine, Associate Professor

Stanislav Gordeyev, Research Assistant Professor
Robert A. Howland Jr., Associate Professor
Frank Incropera, the H. Clifford and Evelyn A. Brosey Professor of Mechanical Engineering

Eric J. Jumper, Professor
Karel Matous, Associate Professor
Scott C. Morris, Associate Professor
Robert C. Nelson, Professor
Glen Niebur, Associate Professor
Timothy C. Ovaert, Professor and Director of Graduate Studies
Samuel Paolucci, Professor
Joseph M. Powers, Professor
John E. Renaud, Professor and Department Chair
R. Mark Rennie, Research Assistant Professor

Ryan K. Roeder, Associate Professor
Steven R. Schmid, Associate Professor
James P. Schmiedeler, Associate Professor
Mihir Sen, Professor
Michael M. Stanisic, Associate Professor

BIOENGINEERING CHEMICAL AND BIOMOLECULAR ENGINEERING

Philippe Sucosky, Assistant Professor
Flint O. Thomas, Professor
Andres Tovar, Research Assistant Professor
Diane R. Wagner, Assistant Professor
Meng Wang, Associate Professor

## Bioengineering

Interim Director:
Mark J. McCready
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E-mail: bioeng@nd.edu
Web: http://www.nd.edu/-bioeng
Bioengineering lies at the intersection of the life sciences and the traditional disciplines of chemical, civil, computer, mechanical and electrical engineering. Bioengineering research at Notre Dame includes biomedical applications, such as orthopaedic implants, miniature medical diagnostic devices, medical imaging and algorithms for radiation treatment as well non-medical applications such as analysis of genomic information, biological water treatment, bacteria-mineral interactions and bioremediation.

## The Program of Studies

The Ph.D. program has been designed to emphasize depth of knowledge in a single traditional engineering discipline, while incorporating additional coursework to provide a strong foundation in the biological sciences.

All University requirements regarding examinations and courses will apply to the program. The following requirements are specific to the bioengineering degree.

## Course Requirements

Students will complete a minimum of nine courses ( 27 credit hours). Degree plans will be designed in cooperation with the student's advisor. Because of the breadth of research areas and potential career paths for students, it is necessary to allow flexibility in structuring the academic plan for each student. However, general course guidelines will be used to ensure that students receive adequate instruction in both engineering and biological sciences.

The following minimum requirements must be satisfied by each student's degree program:

Engineering Science: Nine credits (three courses) of traditional engineering courses at the graduate level ( 60000 and above). These courses must incorporate significant applications of engineering mathematics, and should generally be from the student's home department. The courses appropri-
ate to fulfill these requirements will be determined by the Faculty Program Committee of the Bioengineering Graduate Program. A list will be provided to the students upon matriculation into the program, and updated as appropriate.

Biological Science: Nine credits (three courses) of biosciences courses such as biology, physiology, anatomy, or biochemistry. The courses must include Introduction to Cell Biology (BIOS 30341 or equivalent) and higher level courses. Additional courses at the 30000 -level may be taken as remedial courses, but cannot be used to fulfill the bioscience requirements. The biosciences coursework is intended to provide the student with depth of knowledge in the biological sciences, and should include at least one course at the graduate ( 60000 or greater) level.

Bioengineering: A minimum of nine credits (three courses) of engineering, bioengineering, and biology electives at the graduate level (60000 and above). These courses are intended to develop the student's ability to synthesize knowledge in engineering and biology, and to develop the necessary background to complete their dissertation research.

Seminar: A zero-credit bioengineering seminar during all semesters in residence. The seminar will present recent advances across the spectrum of bioengineering research. One seminar each semester will be devoted to topics in bioethics with emphasis on contemporary questions in bioethics (e.g. stem cells, human subjects, and the use of animals in research).

In the first year of study, students must formulate a degree plan, including specific courses to be taken. The degree plan will be reviewed and approved by the program director and FPC. The proposed program of study represents the minimum set of courses that the student will complete in order to receive their degree, and any omissions or substitutions, regardless of the reason, must be explicitly approved by the bioengineering FPC or their designate(s).

## Program Examinations

After the second semester of residence, each student presents written and oral reports based on thesis research or project work. These reports, along with performance in courses, in research, and in teaching assistantship duties, constitute the comprehensive evaluation in chemical engineering. This allows the faculty to evaluate the student's grasp of bioengineering fundamentals and his or her ability to perform original, independent research. Students who pass the comprehensive evaluation may continue to the Ph.D. program.

Students generally take the oral candidacy examination before the end of the fifth semester in residence. This examination focuses on the progress achieved in thesis-related work and on the proposed future research.

Areas of current research include: bio-inspired optimization strategies, biological materials; biomechanics, bioseparations; cell mechanics, computational biology, drug transport in bone tissue, medical imaging medical microfluidic devices; microscale sensor arrays; orthopaedic implants, tissue engineering, tissue mechanics

More detailed descriptions of the research interests of individual faculty members may be found at the program website, http://www.nd.edu/~ bioeng.

For associated course listings, see the listings for the Aerospace and Mechancical Engineering and Chemical and Biomolecular Engineering programs.

## Chemical and <br> Biomolecular Engineering <br> Chair:

Mark J. McCready
Director of Graduate Studies:
Mark A. Stadtherr

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Location: 182 Fitzpatrick Hall
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Web: http://cbe.nd.edu

## The Program of Studies

The department offers programs leading to the degrees master of science and doctor of philosophy. The aim of the graduate program is to prepare qualified candidates for research, development, teaching, and other professional careers in chemical and biomolecular engineering. Thus, the Ph.D. program is emphasized.

The objective of the doctoral program is to superimpose upon a broad education the ability to think independently in new fields, to coordinate technical ideas at an advanced level, and to make a systematic approach to the solution of new problems.

The course work is chosen in consultation with department faculty and the dissertation research adviser according to procedures outlined in $A$ Guide to Graduate Studies in Chemical and Biomolecular Engineering (available from the department office).

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## CHEMICAL AND BIOMOLECULAR ENGINEERING $\leadsto$ CIVIL ENGINEERING AND GEOLOGICAL SCIENCES

After the second semester of residence, each Ph.D. student presents written and oral reports based on thesis research or project work. These reports, along with performance in courses, in research, and in teaching assistantship duties, constitute the comprehensive evaluation in chemical engineering. This allows the faculty to evaluate the student's grasp of chemical engineering fundamentals and his or her ability to perform original, independent research. Students who pass the comprehensive evaluation may continue to the Ph.D. program.

Ph.D. students generally take the oral candidacy examination before the end of the fifth semester in residence. This examination focuses on the progress achieved in thesis-related work and on the proposed future research.

The departmental faculty believes that all students seeking advanced degrees in chemical and biomolecular engineering should have some experience related to the instruction of others. Therefore, all first- and second-year graduate students are assigned teaching assistant duties. These duties consist of conducting recitation sections for lecture courses, supervising laboratory courses, or grading homework.

Full-time students normally complete the Ph.D. degree requirements in about four-and-a-half years beyond the bachelor's degree. Requirements for the master's degree can normally be completed in two years of full-time study.

A student pursuing the Ph.D. degree will be eligible to receive an M.S. degree after completing five semesters in the Ph.D. program, passing the Ph.D. candidacy exam, and preparing and submitting for publication a research paper in collaboration with the student's research advisor(s). This paper shall describe work in which the student has a primary (not supporting) role, be submitted to a research journal or to the proceedings of a technical conference, and be subject to peer review.

## Teaching and Research Faculty

Basar Bilgicer, Assistant Professor
Paul W. Bohn, Schmitt Professor
Joan F. Brennecke, the Keating-Crawford Professor of Chemical Engineering and Director of Notre Dame Energy Center

Hsueh-Chia Chang, the Bayer Corporation Professor of Chemical Engineering
Davide A. Hill, Associate Professor
Prashant Kamat, Concurrent Professor
Jeffrey C. Kantor, Professor
Peter Kilpatrick, McCloskey Dean of Engineering
David T. Leighton Jr., Professor
Edward J. Maginn, Professor and Associate Dean for Academic Programs in the Graduate School

Mark J. McCready, Chair and Professor
Paul J. McGinn, Professor
William F. Schneider, Professor
Mark A. Stadtherr, Director of Graduate Studies and Keating-Crawford Professor of Chemical Engineering

William C. Strieder, Professor
Eduardo E. Wolf, Professor
Y. Elaine Zhu, Associate Professor

## Civil Engineering and Geological Sciences

Chair:

Peter C. Burns
Director of Graduate Studies:
Yahya C. Kurama

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## The Program of Studies

The graduate program in civil engineering and geological sciences provides an interdisciplinary atmosphere conducive to preparation of qualified candidates for careers in structural engineering, environmental engineering, environmental hydrology, and geological sciences.

The programs of study offered by the department lead to the master of science degree and the doctor of philosophy. The department requires a minimum cumulative grade point average of 3.0 for graduation from its degree programs.

Although both research and nonresearch options are available to students seeking the master's degree, the research option is the preferred and normal route. The nonresearch option is allowed only in exceptional circumstances. In the research option, 30 credit hours are required with six to 14 of these credits devoted to thesis research, depending on the program of study developed in conjunction with the department. The research option requires a completed thesis and an oral defense of that thesis. The master's research is commonly completed by the end of the fourth semester of enrollment.

Requirements for the doctor of philosophy include a total of 72 credit hours with at least 18 credit hours of formal graduate course work, successful completion of a written qualifier examination, a research proposal, an oral candidacy examination, and completion and defense of a dissertation.

Programs of study and research are arranged to suit the specific background and interests of the individual student, with guidance and approval of the faculty of the department and in conformity with the general requirements of the Graduate School.

Regardless of funding source, all students participate in the educational mission of the department by serving as teaching assistants for eight hours per week during their first year, four hours per week during their second year, and, for continuing students, four hours per week during one additional semester.

Graduate students are encouraged to complete courses from other departments and colleges within the University to expand their understanding of today's complex technological-social-economic problems. In the past, students have shown particular interest in extradepartmental courses in biological sciences, chemical engineering, chemistry, economics, electrical engineering, mathematics, and mechanical engineering.

Admission to graduate study in civil engineering and geological sciences is not limited to undergraduate majors in civil engineering and/or geology. Those with undergraduate majors in other fields of engineering or the physical sciences are encouraged to apply. Students are not required to have completed a master's program to pursue the doctor of philosophy.

All full-time admitted students, pursuing a research degree option, are provided with full financial support that includes a competitive stipend and full tuition waiver. Additional fellowships are available for students from underrepresented groups.

## Teaching and Research Faculty

Thomas Albrecht-Schmitt, Professor
Peter C. Burns, Chair and the Henry J. Massman Jr. Professor of Civil Engineering and Geological Sciences

Jeremy B. Fein, Director of the Center for Environmental Science and Technology and Professor

Harinda J. Fernando, Murdy Professor
Ahsan Kareem, the Robert M. Moran Professor of Civil Engineering and Geological Sciences

Andrew Kennedy, Assistant Professor
Tracy Kijewski-Correa, Associate Professor and Associate Chair

David J. Kirkner, Associate Professor
Yahya C. Kurama, Director of Graduate Studies and Associate Professor

Patricia A. Maurice, Professor
Chongzhen Na, Assistant Professor

Clive R. Neal, Professor
Robert Nerenberg, Assistant Professor
J. Keith Rigby Jr., Associate Professor

Joshua D. Shrout, Assistant Professor
Stephen E. Silliman, Professor, Fellow of the Kellogg Institute for International Studies, and Associate Chair

Joannes J. Westerink, Professor
Kapil Khandewal, Assistant Professor
Alexandros Taflanidis, Assistant Professor

## Computer Science and Engineering

Chair:

Kevin W. Bowyer<br>Director of Graduate Studies:<br>Sharon Hu

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Web: http://www.cse.nd.edu

## The Program of Studies

The department offers programs of study and research leading to the degrees of master of science in computer science and engineering and the doctor of philosophy.

Students who show potential for the doctoral level work may be admitted to the Ph.D. program but are expected to complete the master's degree requirements first. The master's degree requires a minimum of 24 credit hours of course work beyond the bachelor's degree and a master's thesis. A full-time student can complete these requirements in three regular academic semesters plus the summer, although the majority of students take four semesters. The student must, upon the acceptance of the thesis, successfully pass an oral thesis defense examination. Doctoral students are normally required to accumulate a minimum of 12 credit hours of satisfactory course work beyond the master's degree, plus a dissertation.

The doctoral program normally requires four years of full-time work. The requirements include successful completion of the Ph.D. qualifying and candidacy examinations, a dissertation, and the oral dissertation defense examination. Students are encouraged to pursue course work outside the department whenever such studies support their program in the major field.

The Ph.D. qualifying examination is course-based and is normally completed in the second spring semester after entering the program with a bachelor's degree. Those admitted with a master's degree are required to finish the courses for the Ph.D. qualifying examination by the end of the first spring after entering the program. The Ph.D. candidacy requirement, which consists of a written and an oral part, is administered to determine if the student has identified a viable dissertation topic. The candidacy consists of a written topic proposal followed by an oral examination. After passing the Ph.D. candidacy, which takes place after the completion of the formal course work, the student devotes essentially all efforts to completing his or her dissertation research. At the dissertation defense, the student defends the dissertation before an oral examining board. In recent years, students have completed the Ph.D. degree requirements in about four to five years.

Finally, both M.S. and Ph.D. candidates are required to complete a teaching apprenticeship that involves teaching duties of one semester for M.S. candidates and two semesters for Ph.D. candidates.

## Teaching and Research Faculty

Panos J. Antsaklis, Director of the Center for Applied Mathematics, the H. C. and E. A. Brosey Professor of Electrical Engineering, and Concurrent Professor of Computer Science and Engineering

## Albert-László Barabási, Adjunct Professor

Brian Blake, Professor and Associate Dean of Engineering for Strategic Initiatives

Marina Blanton, Assistant Professor
Kevin W. Bowyer, Chair, the Schubmehl-Prein Professor, and Concurrent Professor of Electrical Engineering
Jay B. Brockman, Associate Professor and Concurrent Associate Professor of Electrical Engineering
Amitabh Chaudhary, Assistant Professor
Nitesh V. Chawla, Assistant Professor
Danny Z. Chen, Professor
Frank H. Collins, Concurrent Professor and the George and Winifred Clark Professor of Biological Sciences
Scott Emrich, Assistant Professor
Patrick J. Flynn, Professor
Xiaobo Sharon Hu, Director of Graduate Studies and Associate Professor

Eugene Henry, Professor Emeritus
Yih-Fang Huang, Professor of Electrical Engineering and Concurrent Professor of Computer Science and Engineering

## Jesús A. Izaguirre, Associate Professor

Peter M. Kogge, the Ted H. McCourtney Professor of Computer Science and Engineering and Concurrent Professor of Electrical Engineering
Gregory R. Madey, Professional Specialist, and Concurrent Associate Professor

Jaroslaw (Jarek) Nabrzyski, Concurrent Associate Professor and Director of the Center for Research Computing
Joseph Nahas, Visiting Professor
Michael Niemier, Assistant Professor
Christian Poellabauer, Assistant Professor
Robert L. Stevenson, Professor of Electrical Engineering and Concurrent Professor of Computer
Science and Engineering
John Stewman, Visiting Associate Professor
Aaron Striegel, Associate Professor
Douglas Thain, Assistant Professor
Zoltan Toroczkai, Concurrent Associate Professor and Associate Professor of Physics
John J. Uhran Jr., Professor Emeritus and Professor Emeritus of Electrical Engineering

## Electrical Engineering

Chair:
Thomas E. Fuja
Director of Graduate Studies:
Gregory L. Snider
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Location: 275 Fitzpatrick Hall
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## The Program of Studies

The department offers programs leading to the M.S. and Ph.D. degrees in electrical engineering.

A research M.S. degree requires 30 credit hours beyond the B.S., with at least six credit hours coming from thesis research. A research M.S. also requires the completion and defense of an M.S. thesis. A nonresearch M.S. degree requires 30 credit hours of course work. All students must take a written qualifying examination at the end of their second semester of graduate study; successful completion of the exam is required to receive an M.S. degree.

To continue to the Ph.D. program, students must also take an oral research exam before the start of their third semester. Doctoral students must accumulate a minimum of 36 course credits beyond
the B.S. degree, pass the qualifying and candidacy examinations, spend at least two years in resident study, and write and defend a Ph.D. dissertation.

## Teaching and Research Faculty

Panos J. Antsaklis, the H. C. and E. A. Brosey Professor of Electrical Engineering, and Concurrent Professor of Computer Science and Engineering

Peter H. Bauer, Professor
Gary H. Bernstein, Professor
Oliver M. Collins, Professor
Patrick J. Fay, Professor
Thomas E. Fuja, Chair and Professor
Vijay Gupta, Assistant Professor
Martin Haenggi, Associate Professor
Douglas C. Hall, Associate Professor
Yih-Fang Huang, Professor of Electrical Engineering and Concurrent Professor of Computer Science and Engineering

Debdeep Jena, Associate Professor
Thomas H. Kosel, Associate Professor
J. Nicholas Laneman, Associate Professor

Michael D. Lemmon, Professor
Craig S. Lent, the Frank M. Freimann Professor of Electrical Engineering

Christine M. Maziar, Vice President and Associate Provost of the University and Professor of Electrical Engineering

Wolfgang Porod, Director of the Center for Nano Science and Technology and the Frank M. Freimann Professor of Electrical Engineering

Michael K. Sain, the Frank M. Freimann Professor of Electrical Engineering

Ken D. Sauer, Director of Undergraduate Studies and Associate Professor

Mike Schafer, Professional Specialist
Alan C. Seabaugh, Director of the Midwest Institute for Nanoelectroncs Discovery (MIND) and Professor

Gregory Snider, Director of Graduate Studies and Professor

Robert L. Stevenson, Professor of Electrical Engineering and Concurrent Professor of Computer Science and Engineering

Mark A. Wistey, Assistant Professor
Grace Xing, Assistant Professor

## Engineering and Law Dual Degree Program

The dual degree program in engineering and law is designed for law students who are interested in pursuing careers in areas such as patent, environmental, telecommunications, or similar law specialties. To be eligible for the master of engineering degree, the candidate must have a B.S. in an A.B.E.T. accreditted engineering or computer science program and must also be a candidate for the juris doctor degree in the Notre Dame Law School. The master's of engineering program is not available as an individual degree program.

To be awarded both degrees, the candidate must complete a minimum of 99 credit hours, 75 in law and 24 in the engineering program. The engineering degree awarded will be the master of engineering with a concentration in one of the engineering disciplines offered in Notre Dame's division of engineering. The course work-only master's program requires the completion of 24 credit hours of engineering, mathematics, or science courses acceptable to the appropriate engineering department; six credit hours of appropriate law courses; and a master's examination. Courses for the M.Eng. will be chosen in consultation with an adviser in the student's engineering department. The recommended distribution of engineering courses in the Law School curriculum is one each semester during the first and third years of study and two each semester during the second year. (http://www. nd.edu/engineer/prospects/images/lawdual.pdf)

## Admission

Admission to the program requires a separate application to each school. Admissions decisions will be made independently by the Law School and by the Graduate School.

To apply to the Law School, or for more information, please visit http://law.nd.edu or telephone (574) 631-6626.

For further information about the engineering program, contact the Office of Graduate Admissions by telephone at (574) 631-7706 or by email at gradad.1@nd.edu.

# The Division of Humanities 

## Art, Art History, and Design

## Chair:

Charles Barber
Director of Graduate Studies:
Martina Lopez
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Fax: (574) 631-6312
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E-mail: art@nd.edu
Web site: http://www.nd.edu/~art

## The Program of Studies

The Department of Art, Art History, and Design offers the master of fine arts (M.F.A.) degree in studio art and design and the master of arts (M.A.) degree in art history. In studio art and design, the department also awards the M.A. degree, but only to students who are not accepted to degree candidacy in the M.F.A. program.

The aim of the graduate program is to educate qualified, promising students in various aspects of creative activity and art history. Studio and design students may concentrate in ceramics, design, painting, photography, printmaking, and sculpture, or in a combination of these disciplines. Art history students select from a range of course offerings to fulfill their professional interests. In addition to specific courses, graduate students may pursue an area of interest through a system of independent study with a faculty adviser and a graduate committee selected by the student. M.F.A. students are expected to develop a personal direction that culminates in a professional exhibition of visual work or a research project in art history.

## The Master of Fine Arts Degree

The master of fine arts degree (M.F.A.) at Notre Dame is for artists and designers with exceptional talent and strong academic skills. The program combines studio work with academic studies in art history and criticism. The College Art Association and most other professional institutions of higher education recognize the M.F.A. as the terminal degree for artists and designers. This degree has become the standard prerequisite for those who
intend to teach at the college level. It is also appropriate for individuals seeking to further develop their professional careers as artists and designers.

The M.F.A. degree is a studio and research degree that requires three years or six semesters of study and 60 graduate credit hours with a B (3.0) or better average, including nine credit hours of art history, three credit hours in ARHI 63570 (Graduate Seminar) and 10 credit hours of ARST 78708 (Thesis Direction). Additional requirements include:

- Successful completion of ARST 62704 (Teaching Methods) each year.
- Successful completion of the seminar offered in the student's area of study each semester.
- Admission to the third year of the M.F.A. program (M.F.A. candidacy).
- The successful completion of a written thesis approved by the student's thesis committee.
- The completion of a thesis project, an exhibition of creative work that is approved by the entire art and design faculty.
- In addition there will be an option to send images electronically through a web site. Please refer to the departmental web site for information.

Students who are not in residence but still in the process of finishing an M.F.A. degree must be enrolled for a minimum of one credit hour of ARST 78706 (Nonresident Thesis Research) each semester.

## The Master of Arts Degree: Art History

The M.A. prepares the student for more advanced graduate work by providing him or her with the opportunity to solidify general and specialized art historical knowledge and to hone research skills. The degree may also serve as a foundation for employment or further study in fields such as museology, visual image management, and art dealing and investment. The M.A. in art history is not a terminal degree. A doctorate is normally required to teach at the collegiate level.

The M.A. in art history requires the completion of 36 credit hours of graduate study,
including six credit hours of thesis research, with a B (3.0) or better average. A normal course load is from nine to 12 credit hours per semester. The successful completion of ARHI 63576 (Art History Methods) is required. Students must also successfully complete four seminars in addition to ARHI 63576 (Theories of Art). Students who are not in residence but still in the process of finishing an M.A. degree must be enrolled for a minimum of one credit hour of ARHI 68574 (Nonresident Thesis Research) each semester.

Additional requirements include:

- The successful completion of a written thesis. The student will be expected to select a thesis topic and adviser by the end of the first year of study. The finished thesis must be approved by the student's thesis committee and then presented at the art history graduate symposium in the spring of the student's second year.
- Evidence of reading ability in one foreign language, either German, French, or another language approved by the graduate adviser. Reading ability is normally demonstrated by obtaining a passing grade on the appropriate Graduate Reading Examination administered by the University. This requirement must be fulfilled during the first year of graduate study.


## The Master of Arts Degree: Studio Art and Design

The non-research master of arts degree (M.A.) program in studio art and design is granted to M.F.A. students who either are not admitted to M.F.A. candidacy or choose to leave the M.F.A. program with an M.A. degree. The department does not regularly admit students to this program. The non-research M.A. degree requires 40 graduate credits, including six credit hours in art history and three credit hours in ARHI 63570 (Graduate Seminar). Students who are not in residence but still in the process of finishing an M.A. degree must be enrolled for a minimum of one credit hour of ARST 78706 (Nonresident Thesis Research) each semester.

## Studio Art and Design Course Descriptions

Graduate instruction in studio and design is done primarily on an independent study basis. Students take credit hours each semester with faculty in their chosen media area. The program fosters an interdisciplinary environment that allows students to also study with faculty from other areas of the department to meet their creative objectives. Students meet regularly with faculty and graduate students for critiques and seminars. Course listings below reflect the various media areas in which a student can take credits.

## Teaching and Research Faculty

Charles E. Barber, Chair and Professor
Nyame Brown, Assistant Professor
Robert R. Coleman, Associate Professor and Research Specialist in the Medieval Institute

Rev. Austin I. Collins, C.S.C., Professor
Jean A. Dibble, Associate Professor
Dennis P. Doordan, Concurrent Professor of Art, Art History, and Design and Professor of Architecture

Paul A. Down, Associate Professor
Rev. James F. Flanigan, C.S.C., Associate Professor

Richard Gray, Director, Center for Creative Computing and Associate Professor

Danielle B. Joyner, Assistant Professor
William J. Kremer, Professor
Martina Lopez, Associate Chairperson, Director of Graduate Studies and Associate Professor

Martin L. Nguyen, C.S.C., Associate Professor
Kathleen A. Pyne, Assistant Director of Graduate Studies for Art History and Professor

Robin F. Rhodes, Associate Professor and
Concurrent Associate Professor of Classics
Charles M. Rosenberg, Professor
Robert P. Sedlack, Associate Professor
Maria Tomasula, The Michael P. Grace II Chair in Arts and Letters (Collegiate Chair) and Professor

## Early Christian Studies <br> Chairs:

Elizabeth Mazurek (Classics)
John Cavadini (Theology)
Director of Graduate Studies:
Blake Leyerle
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Location: 304 O'Shaughnessy
Web: http://www.nd.edu/~ecs
The two-year interdisciplinary M.A. program in early Christian studies is sponsored jointly by the Departments of Classics and Theology, with the participation of faculty in several other departments (see listing below). It offers beginning graduate students basic training in philology, theology, history, liturgy, art history, and philosophy. Each student develops a curriculum to meet individual needs in consultation with a committee of faculty advisers. But all curricula are designed to ensure that students are equipped with the necessary language skills (at least two ancient Christian languages and literatures [Latin and/or Greek and/or Syriac] and one or more contemporary research languages) and with a sturdy grasp of the intellectual, historical, and social contexts of the early church and the methods and resources for studying them.

New disciplinary and critical approaches to late antiquity, as well as a growing awareness of the importance of Christian origins for the present life of the churches, have made early Christian studies a vibrant and rapidly expanding field. Traditional expertise in philology, history, and theology remains fundamental, but these skills must now be supplemented by a broad range of interdisciplinary approaches. An unusually strong faculty presence makes Notre Dame the ideal place for pursuing this area. Students who come with a keen interest in the field, but limited formal training in it, may acquire the basic skills and knowledge necessary for advanced study. Those already adequately prepared in the basics can broaden their competency by studying the language and culture of Middle Eastern, Egyptian, and Byzantine Christianity, and of Rabbinic Judaism and early Islam.

This is a demanding, extended (two academic years plus summer) M.A. program that prepares students to enter the best doctoral programs in theology, religious studies, history, art history, and literary studies, already proficient in language study and basic training in the multiple fields of early Christian studies.

## Contributing Teaching and Research Faculty

Joseph P. Amar, Professor of Classics and Concurrent Associate Professor of Theology
Charles E. Barber, the Michael P. Grace Professor of Arts and Letters and Professor of Art, Art History, and Design
W. Martin Bloomer, Associate Professor of Classics

Keith R. Bradley, Eli J and Helen Shaheen Professor of Classics, and Concurrent Professor of History

John C. Cavadini, Chair and Associate Professor of Theology, and Executive Director of the Institute for Church Life

Brian E. Daley, S.J., the Catherine F. Huisking Professor of Theology

Blake Leyerle, The John Cardinal O'Hara, C.S.C., Associate Professor of Theology and Concurrent Associate Professor of Classics
Daniel J. Sheerin, Professor of Classics and Concurrent Professor of Theology, Emeritus

Robin Darling Young, Associate Professor of Theology

## Associated Faculty

David E. Aune, Professor of Theology
Mary Rose D'Angelo, Associate Professor of Theology
Stephen E. Gersh, Professor of Medieval Studies

Maxwell E. Johnson, Professor of Theology
Mary M. Keys, Associate Professor of Political Science

Brian Krostenko, Associate Professor of Classics

David Ladouceur, Associate Professor of Classics

John P. Meier, the William K. Warren Professor of Catholic Theology
Hildegund Müller, Associate Professor of Classics
Jerome H. Neyrey, S.J., Professor of Theology
David K. O'Connor, Associate Professor of Philosophy and Concurrent Associate Professor of Classics
Gretchen J. Reydams-Schils, Professor in the Program of Liberal Studies and Fellow in the Nanovic Institute for European Studies
Gregory E. Sterling, Dean of the Graduate School and Professor of Theology

## ENGLISH

## English

Chair:

John Sitter<br>Director of Graduate Studies:<br>Jesse Lander<br>Director of Creative Writing:<br>Steve Tomasula

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Location: 356 O'Shaughnessy 340 O'Shaughnessy (CW)

E-mail: english@nd.edu creativewriting@nd.edu

Web: http://www.nd.edu/~english http://www.nd.edu/-alcwp

## The Program of Studies

## Master's Program

## English and American Literature

The Master's Program is specifically designed for Notre Dame or St. Mary's undergraduate English majors seeking advanced training before applying to a Ph.D. program at another institution. This is a 30 -credit-hour program, requiring either 30 credit hours of course work or 24 credit hours of course work and six credit hours of thesis research. Students must take one course in literary criticism or theory. Those seeking the research degree must also demonstrate proficiency in a language appropriate to their area of research. Near the conclusion of the program, the student takes a written examination covering three major literary texts and selected criticism, designed to test the student's capacity for critical study, or writes a master's thesis.

## Master's Program in English and Law

This is a program open only to students already admitted to the Notre Dame Law School who also wish to obtain an M.A. in English. A student typically takes 21 hours of English courses and 9 hours of law courses. The course on "Law and Literature," offered in the Law School, can be counted towards the 21 hours of English. Students would normally pursue the nonresearch degree; those wishing to complete the research degree need to complete an additional six hours of thesis research. Admission is through the normal procedures of the Graduate School and the Department of English.

## M.F.A. in Creative Writing

The graduate creative writing program is a four-semester program in which students take 36 credit hours of writing workshops, thesis preparation tutorials, and literature classes. Students may also choose to work as editorial assistants on our national literary magazine, The Notre Dame Review. Throughout the four semesters, all students work closely with an adviser on the thesis, which will ultimately be a publishable novel, collection of stories, volume of poetry, or work of literary nonfiction.

## Ph.D. Program

## Course Requirements

The Ph.D. program requires 42 credit hours of course work. Students must take the Introduction to Graduate Study, a historical distribution of courses, and at least one course in literary theory. In keeping with its policy of encouraging interdisciplinary study, the program permits the student to take up to 12 credit hours of course work in a field other than English.

## Foreign Language Requirement

By the end of the second year of full-time residency, the student must demonstrate proficiency in two languages or fluency in one language. Proficiency is demonstrated by successfully passing a language exam administered by the appropriate language department, or by passing an advanced undergraduate literature course in the language. Fluency is demonstrated by passing a graduate literature course in the language. The language(s) should be appropriate to the student's area of research.

## Candidacy (Comprehensive Three-Field) Examination

The student takes examinations in one historical period selected from among Old English, Middle English, Renaissance, Restoration and 18th-century, 19th-century British, 20thcentury British, early American literature (to 1865), middle American literature from the Civil War to 1930, and post-1930 American literature; either a second historical period or a special topic; and one examination in literary theory/methodology. One of these three fields, ordinarily the field in which the student intends to write his or her dissertation, is designated the major field. These examinations are intended to determine whether the student possesses the theoretical skills and specialized knowledge necessary for writing a dissertation and for teaching in his or her field. Special reading courses enable students to dedicate the majority of their last two semesters of course work to preparation for these examinations. The written part of the examination is followed by an oral component.

## Dissertation Proposal

In the fall of the fourth year, students produce a dissertation prospectus and preliminary draft of one part of the dissertation (a chapter or substantial part of a chapter). Students
then meet with the dissertation committee for advice on continuing and completing the project.

## Dissertation

Upon receiving approval of the proposal, the student proceeds with the dissertation under continuing supervision of the dissertation director. The dissertation is intended to demonstrate the student's readiness to participate fully in the profession as a scholar and literary critic.

## Recent Courses Offered

Some courses are offered every year or semester, such as "Graduate Writing Workshops" and "Introduction to Graduate Studies," and courses in the traditional historical areas are offered every semester. Specific topics will vary each semester. For more information, consult the English Department webpage.

Courses within the following topics vary from year to year, but there will always be at least one course taught from each topic per semester. Recent course offerings have included:

```
Old and Middle English Literature
    90201. Beowulf
    90202. Chaucer's Early Poetry
    90203. First Aid in Middle English
    90211. Canterbury Tales
    90212. The Poetry of Cynwulf
    90214. Latin Literature of Anglo-Saxon
        England
    90225. Old English Biblical Verse
    90226. Language, Symbolism, and Vision
    90227. Chaucer and Medieval Narrative
    90229. Writing and Politics in Middle
        English
```


## Renaissance Literature

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90117. Print, Manuscript, and Performance in the Atlantic World, 1550-1800
90209. Books, Authors, and Readers in Early Modern England
90217. Republican Aesthetics
90221. Hamlet and Lear in Performance
90223. Spenser, Milton, Marvell
90230. Shakespeare and Film
90233. History Plays and Historiography
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## Restoration and $\mathbf{1 8}^{\text {th }}$ Century Literature

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90231. Age of Johnson
90302. Aesthetic Theory and the Enlightenment
90303. Reading the French Revolution
90311. Monsters of Benevolence: Irish Ascendancy Writers and Early Modernity, 1720-1800
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## Romantic and Victorian Literature

90301. Victorian Science and Literature
90302. Nineteenth-Century British Novel
90303. Romantic Era Drama and the Public Theatre
90304. Victorian Literature
90305. Romanticism and Culture Wars: Lakers, Scots, and Cockneys
90306. Romanticism, Gender, Colonialsim
90307. The $19^{\text {th }}$ Century Local

## Modern British Literature

90401. Modern British Poetry
90402. Postmodernism and British Poetry
90403. Woolf and Bloomsbury
90404. Modernism and Modernity

## American Literature before 1900

90601. Early American Literature
90602. American Realism
90603. American Literature at War in Mexico

American Literature after 1900
90702. Cold War Fictions
90705. Objectivism in $20^{\text {th }}$ Century American Poetry
90801. African-American Women Writers
90802. Black Feminist Criticism
90803. Latino Poetry
90804. Fictions of Citizenship
90805. Latino/a Literature
90820. Writing Harlem: Race, Renaissance, the Modern

## Irish Studies

90502. Representing Ireland
90503. Anglo-Irish Identities
90504. Modernity, Gothic, and Irish Culture
90505. Modern Irish Drama and Revolutionary Politics
90506. Gaelic Gothic
90507. Joyce, Modernity, Post Colonial Ireland
90508. Irish Modernism
90509. Ireland: Genealogies/Culture

## Literary Theory

90403. From Brecht to Performance Art: Drama and Dramatic Theory, 1930-2000 90405. Weimar Republic
90404. Poetic Language, Theory, Performance
90405. History of Modern Aesthetics
90406. Philology and Weltliterature
90407. Modern and Contemporary Poetics

## Creative Writing

90013 Graduate Fiction Workshop
90038 Graduate Poetry Workshop
90129 Issues in Contemporary Poetics
90190 Postmodern Narrative
90912 Contemporary Conceptual Literature
90128 20th Century International Poetry

## Teaching and Research Faculty

Jacqueline V. Brogan, Professor
Mary Burgess Smyth, Assistant Professor

Joseph A. Buttigieg, The William R. Kenan Jr. Professor of English, Director of the Ph.D. in Literature Program, and Director of the Office of International Studies

James M. Collins, Associate Professor of Film, Television, and Theatre and Concurrent Associate Professor of English

Margaret Doody, the John and Barbara Glynn Family Professor of Literature

John Duffy, Associate Professor and Director, University Writing Center and College Seminar Progarm

Cornelius Eady, Associate Professor
Maud Ellmann, the Donald and Marilyn Keough Chair of Irish Studies

Stephen M. Fallon, Professor of Liberal Studies and Concurrent Professor of English

Christopher B. Fox, Professor, Director of the Keough Institute for Irish Studies, and Chair of Irish Language and Literature
Stephen A. Fredman, Professor
Dolores Warwick Frese, Professor Luke Gibbons, the Graduate Director of Irish Studies, the Keough Family Professor of Irish Studies, the Notre Dame Professor of English, and Concurrent Professor of Film, Television, and Theatre

Barbara J. Green, Associate Professor
Stuart Greene, Associate Dean of Undergraduate Studies, College of Arts and Letters, and Associate Professor of English

Sandra Gustafson, Associate Professor
Thomas N. Hall, Associate Professor
Susan Cannon Harris, Associate Professor and Concurrent Associate Professor in the KeoughNaughton Institute for Irish Studies

Peter Holland, McMeel Professor in Shakespeare Studies in the Department of Film, Television and Theatre, and Concurrent Professor in English
Romana Huk, Associate Professor
Antonette K. Irving, Assistant Professor
Cyraina Johnson-Roullier, Associate Professor
Kathryn Kerby-Fulton, the Notre Dame Professor of English

Greg P. Kucich, Professor and Director of the London Program

Jesse M. Lander, Director of Graduate Studies and Associate Professor

Sara Maurer, Assistant Professor

Joyelle McSweeney, Associate Professor
Orlando Menes, Associate Professor
Susannah Monta, Associate Professor
William A. O'Rourke, Professor
Valerie Sayers, Professor
John Sitter, Department Chair and Notre Dame Professor of English

David Wayne Thomas, Associate Professor
Steve Tomasula, Associate Professor
Chris R. Vanden Bossche, Professor
Henry Weinfield, Professor of Liberal Studies and Concurrent Professor of English

Thomas A. Werge, Professor and Concurrent
Professor in the Master of Education Program
Katherine Zieman, Assistant Professor

## History

Chair:<br>Thomas F. X. Noble<br>Acting Director of Graduate Studies:<br>Christopher S. Hamlin<br>Telephone: (574) 631-7266<br>Fax: (574) 631-4717<br>Location: 219 O'Shaughnessy Hall<br>Department E-mail: histdgs.1@nd.edu<br>Web: http://www.nd.edu/~history

## The Program of Studies

The graduate programs in history permit students to deepen their knowledge and understanding of selected historical specializations and to nourish the historical perspective that marks the educated citizen. Advanced work in history may prepare students for careers in scholarship and teaching, for certain public service careers, or for careers in research.

The history programs accept only students planning to pursue the Ph.D. degree. These students are normally awarded a master's degree in the course of pursuing their doctorates.

## Fields of Study

Command of four fields of study is a requirement of the program for both teaching and research. While these fields may be distributed within our traditional areas of concentration - modern Europe, Latin America, medieval, and Anglo-America/US -two or three fields should be in one of those concentrations. One field — an "outside" field — should be in a separate area of concentration or on a relevant

## HISTORY

methodology. Students are encouraged to develop at least one topical comparative field - e.g., the Atlantic or Pacific, borderlands, colonialism, empire, the environment, exploration, frontiers, law, gender, religion, or slavery.

## General Requirements

Before completing their doctorates, students must satisfy the departmental requirements for the master's degree. Doctoral students receive their master's after completing 33 credit hours of study including one graduate-level seminar in history and 24 credit hours of graduate-level work (seminars, colloquia, directed readings, supplemental research, and readings) in history or related disciplines. The master's degree demands satisfactory completion of course work with a GPA of no less than 3.0. Students must also pass an M.A. exam (normally the candidacy exams count in place of a separate M.A. exam) and satisfy the language requirements (see below). In order to enter the doctoral program, students must satisfy the foreign language requirement and receive the approval of the departmental faculty. Students entering Notre Dame with a master's degree in history from another institution normally have the same course work, writing, and examination requirements as those entering without such a degree. Normally, no more than three credits may be transferred and used to replace required courses in history.

In order to receive a Ph.D., a student must complete a total of 42 credit hours of study, including at least two graduate-level seminars.

In addition to completing prescribed course work, doctoral students must also pass Ph.D. candidacy examinations in their specialties. The candidacy examination will normally be taken in the student's third year of residence. Students wishing to take candidacy examinations earlier than the third year of residence may do so with the consent of their academic advisers and the director of graduate studies. To be eligible to take the candidacy examination, students must satisfy the foreign language requirement and complete the required course work in their specialization.

Before being advanced to Ph.D. candidacy, students must submit to the department an approved dissertation proposal (see procedures outlined below). Within eight years of enrollment into the history graduate program, students must complete a satisfactory doctoral dissertation or risk the loss of their candidacy status.

## Language Requirement

One basic requirement for all candidates for the doctorate in history is a reading knowledge of one modern foreign language. In each field additional languages or an appropriate skill are prescribed as the faculty in that field consider necessary. The following provisions
are in force. Candidates in the field of medieval history must demonstrate competence in Latin and two modern foreign languages, one of which is normally French or German. Competence in Latin is demonstrated by a student's passing the examination in medieval Latin administered by the Medieval Institute. Candidates in modern European history must demonstrate competence in reading two foreign languages, one of which must be French or German. Candidates in American history must demonstrate competence in one modern foreign language. Candidates in Latin American history must demonstrate competence in two foreign languages, one of which must be Spanish. In all fields, language and skill requirements must have been completed by the student before the student will be permitted to take Ph.D. candidacy examinations.

To receive the M.A., doctoral students must demonstrate a reading knowledge of one modern foreign language by the end of their third semester in residence.

## Examinations

First-year examinations are oral examinations administered near the end of the student's second semester of residence. The examination board will consist of two faculty members who have worked with the student during the year. Each faculty member may pose questions based on student course work during the year. The first-year examination will last approximately one hour. The first-year examination does not take the place of a master's exam.

Students will normally receive their master's degree upon successful completion of their Ph.D. candidacy examinations. A terminal master's degree may be awarded in cases where a student has completed all course work, passed at least one language exam (Latin in the case of Medievalists), and passed a master's examination, which is normally the equivalent of two qualifying exam fields in the normal format-a two-hour written examination in each field followed by a sixty-minute to ninetyminute oral exam. For the degree to be awarded, both examiners must pass the student.

Ph.D. candidacy boards will consist of four or five faculty members chosen by the student and his/her advisor, and approved by the director of graduate studies. The written exam shall consist of four or five two-hour essays on topics selected by the examination board within fields chosen by the student; the oral exam shall involve questioning by the board for not less than 90 minutes and not more than three hours. There must be a gap of at least five working days between the final written exam and the oral exam.

Students who fail a Ph.D. candidacy examination may appeal to the director of graduate studies to retake the failed portion one time.

## Advancement to Candidacy for the Ph.D.

While preparing for the Ph.D. candidacy examinations, students should also be preparing a dissertation proposal in consultation with his or her adviser Dissertation proposals are normally submitted to a committee of four faculty members - at least three of whom are History Department teaching and research ( T $\& R)$ faculty - by the end of the semester in which the student passes qualifying exams. Dissertation proposals should aim for a length of ten pages plus bibliography and should include a clear statement of the historical problem engaged by the dissertation, a summary of the dissertation's relationship to the literature in the field, a description of sources and their location and availability, a discussion of methodology and theory informing the project, a preliminary outline of chapters, and a bibliography. The committee may accept, reject, or modify the proposal. If and when a proposal is accepted, the committee will notify the director of graduate studies who will, in turn, nominate the student to the Graduate School as a Ph.D. candidate. The proposal must be approved before the start of the student's seventh semester of enrollment. Upon passage of the qualifying exams and dissertation proposal defense a student advances to Ph.D. candidacy ("all but dissertation," or ABD) and earns a master's degree.

## Writing and Defense of the Dissertation

After advancement to Ph.D. candidacy, students must complete a doctoral dissertation, which the department understands to be a substantial piece of research based on primary sources that makes an original contribution to historical knowledge. Departmental procedures for approval of the dissertation are as follows:

Ph.D. candidates are strongly encouraged to consult with their committee members over the course of research and writing. Candidates should submit draft chapters to all members of the committee as early as possible. Copies of the completed dissertation, including notes and bibliography, must be submitted to all four (five if there are co-directors) committee members at least six weeks prior to the expected date of defense. Copies for the committee members should be submitted to the Department's administrative assistant for graduate studies. S/he will insure that copies reach the faculty members and alert each of them to the time-line and requisite written evaluation that must be signed and received two weeks before a defense can take place. At the same time, the candidate should submit an additional copy to the Graduate School for a preliminary check of formatting. Committee members must read the dissertation and approve or disapprove it within four weeks of receiving the final copy of the dissertation. Approval means that committee members agree to move forward to the defense; it does not mean that they are giving
their final approval for award of the degree based on the dissertation. Approval endorses the dissertation as academically sound and defensible. Formal and final approval can come only after the defense. Committee members may approve the dissertation conditional on revision. In those cases where the defense reveals areas for necessary revision, the candidate must complete those to the satisfaction of the adviser. Only after the adviser signs the title page can the dissertation be submitted to the Graduate School. Candidates should keep this process in mind and allow sufficient time to meet deadlines for graduation. Committee members should not feel obliged to speed up the process to accommodate such deadlines. It is the candidate's responsibility to meet deadlines.

## Teaching and Research Faculty

R. Scott Appleby, the John M. Regan Jr. Director of the Joan B. Kroc Institute for International Peace Studies, Professor of History, and Fellow in the Helen Kellogg Institute for International Studies

Edward N. Beatty, Associate Professor
Gail Bederman, Associate Professor
Rev. Thomas E. Blantz, C.S.C., Professor
D'Arcy Jonathan Dacre Boulton, Professional Specialist in the Medieval Institute and Concurrent Associate Professor of History
Jon T. Coleman, Associate Professor
Olivia R. Constable, Professor and Director of the Medieval Institute
John Deak, Assistant Professor
Lauren Faulkner, Assistant Professor
Felipé Fernandez-Armesto, William P. Reynolds Professor

Daniel Graff, Director of Undergraduate Studies and Associate Professional Specialist
Karen Graubart, Associate Professor
Brad Gregory, Associate Professor
Patrick Griffin, Madden Hennebry Professor of Irish American Studies

Christopher S. Hamlin, Acting Director of Graduate Studies, Professor and Fellow in the Nanovic Institute for European Studies
Asher Kaufman, Assistant Professor
Thomas A. Kselman, Professor and Fellow in the Nanovic Institute for European Studies
Mikolaj Kunicki, Assistant Professor

Semion Lyandres, Associate Professor and Fellow in the Nanovic Institute for European Studies

Sabine G. MacCormack, Rev. Theodore Hesburgh, C.S.C. College of Arts and Letters Professor, jointly appointed in History and Classics

Alexander M. Martin, Associate Professor
John T. McGreevy, I.A. O'Shaughnessy Dean of the College of Arts and Letters, and Professor

Margaret Meserve, Carl E. Koch Associate Professor

Rev. Wilson D. Miscamble, C.S.C., Professor
Dian Hechtner Murray, Professor
Thomas F. X. Noble, Professor and Chair
Mark Noll, the Francis A. McAnaney Professor of History

Jaime Pensado, Assistant Professor
Richard B. Pierce, the Associate Professor
Linda Przybyszewski, Associate Professor
Rory Rapple, Assistant Professor
Marc S. Rodriguez, Assistant Professor
Thomas J. Schlereth, Professor of American
Studies and Concurrent Professor of History
Jayanta Sengupta, Assistant Professor
Phillip R. Sloan, Professor in the Program of Liberal Studies and Concurrent Professor of History

James Smyth, Professor
Robert E. Sullivan, Vice President for the Office of Academic Mission Support, and Associate Professory
Julia Adeney Thomas, Associate Professor
James Turner, the Rev. John J. Cavanaugh, C.S.C., Professor of the Humanities and Fellow in the Nanovic Institute for European Studies

John H. Van Engen, Andrew V. Tackes Professor of History

# History and Philosophy of Science 

Program Director:

Don Howard

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## The Program of Studies

HPS at Notre Dame is an interdepartmental program. Because the Ph.D. in HPS incorporates the requirements for a doctorate in a standard disciplinary department, either history or philosophy, the HPS degree program leads to a doctoral degree inclusive of, but broader in scope than, the departmental degree. For this reason it is defined as a five-year program, rather than the normal four. Thus students who take the doctoral degree in the HPS program can claim to have satisfied both the disciplinary degree requirements and also those of an HPS degree. This allows Notre Dame graduates to situate their work within traditional disciplinary contexts and enables them to qualify for academic positions in regular disciplinary departments.

All designated HPS faculty members may serve as graduate student advisers, take part in examination committees, and act as the primary directors of dissertation research.

## Master's Program

Because HPS is a doctoral program, applications from individuals interested only in receiving a terminal M.A. degree will not be accepted. However, this rule does not apply to individuals concurrently enrolled in other doctoral graduate programs of the University who seek to earn a nonresearch HPS master's degree in order to complement their doctoral studies. Students whose primary enrollment is in HPS will be entitled to receive a master's degree once they have completed the written and oral examination for Ph.D. candidacy. In addition, in the event that an admitted HPS student decides to leave the program or is subsequently discontinued by the HPS program or the disciplinary department, the student may pursue a research (or thesis) terminal M.A. degree.

The nonresearch HPS M.A. degree requires the completion of 36 credit hours of course work. Three courses in history of science and three courses in philosophy of science form the core of this requirement. The student, in consultation with the HPS program director, selects the remaining courses. To be eligible for HPS credit, these courses must bear in significant ways on the concerns of history and philosophy of science. Students taking the nonresearch HPS M.A. concurrently with a

## HISTORY AND PHILOSOPHY OF SCIENCE

Ph.D. in another Notre Dame program may count up to nine hours of course work toward both degree programs, subject to approval by the director of HPS and the director of graduate studies in the other program. Reading knowledge in one foreign language (ordinarily French or German) will be required. A onehour oral examination, based on course work, will complete the requirements for the nonresearch degree. Students taking the terminal HPS research M.A. will prepare an extended research paper or formal M.A. thesis under the direction of a faculty member, for which six hours of thesis credit will be awarded. A one-hour oral comprehensive examination completes the requirements for this research M.A. degree.

## Doctoral Program

HPS students pursue the Ph.D. degree in either a philosophy track or a history track.

## Philosophy Track

Those who elect the philosophy track toward the Ph.D. in history and philosophy of science must satisfy the following course distribution requirements. In HPS, they will take a minimum of three courses in the general area of philosophy of science and four courses in history of science. Courses in the history of science will be selected from offerings designated as satisfying the examination fields for the history of science M.A. comprehensive. In addition, students will satisfy a slightly modified form of the philosophy graduate program's requirements, namely, the philosophy proseminar and a minimum of one course in each of the following areas: logic, history of ancient philosophy, history of medieval philosophy or science, and history of modern philosophy, and in two of the following three areas: ethics, metaphysics, and epistemology. Students may also be advised to take some extra work in one of the sciences, if this seems necessary for the specialized research they are planning. The language requirement for Ph.D. candidates in the philosophy track is a reading knowledge of two foreign languages.

## Ethics of Science and Technology Concentration

 Students on the philosophy track who elect the ethics of science and technology concentration will satisfy the philosophy-track course requirements, but with the following exceptions: (1) the student will take at least four courses in ethics or science and ethics; (2) 20th-Century Ethics will be taken as one of the three required philosophy core courses; (3) one of the four required history of science courses will be selected from a specified list of courses in the area of science, technology, and values; and (4) an additional course in ethics will be chosen from a specified list of philosophy courses.In late summer after his or her second year, the philosophy-track student will take a written qualifying examination in the history of philosophy administered by the Philosophy

Department. At the end of the summer following his or her third year, the student will also be expected to submit an advanced paper in philosophy normally expected of philosophy Ph.D. students after the second year (see philosophy doctoral requirements). In the first semester of the fourth year, the student will take an oral qualifying examination in the philosophy of science, with a special focus on the problem area in which he or she intends to write a dissertation. The five members of the examination board will be appointed jointly by the HPS program director and the director of graduate studies in philosophy.

Once Ph.D. candidacy requirements have been completed, the student will begin preparation of a dissertation proposal under the guidance of a research director of his or her choice. A proposal evaluation committee, consisting of five faculty, will be chosen jointly by the HPS program director, the student's research director, and the DGS in philosophy. After meeting with the student to discuss the proposal, the committee will decide, by majority vote, to approve, reject, or request modifications in the candidate's proposal. The Graduate School requires that dissertation proposals be approved by the end of the eighth semester in order for one to be eligible for continued funding. When the proposal is approved, the student will work under the direction of his or her thesis director to prepare a dissertation that must be approved by the director and three readers appointed by the HPS program director. Readers are normally drawn from the committee that approved the original proposal, but one outside member of the committee may be substituted if deemed desirable for expert judgment of the dissertation. If the readers accept the dissertation, the HPS program director arranges for a dissertation defense. The defense committee is composed of at least the dissertation director, the three dissertation readers, and an outside chairperson appointed by the Graduate School. After the defense and ensuing discussion, the committee decides by majority vote whether the defense of the dissertation project has been satisfactory and determines whether any revisions of the dissertation are required as a result of weaknesses revealed in the oral defense.

## History Track

Those who elect the history track toward the Ph.D. in history and philosophy of science will take a minimum of four courses in history of science, the history department proseminar, and three courses in the general area of philosophy of science. In addition, a student will take at least eight more courses (three of which must be research seminars) in two of these fields: American, Modern European, or Medieval History. These eight courses can include the history of science and technology.

The basic language requirement for Ph.D. candidates on the history track is a reading knowledge of one modern foreign language. In
addition, competence has to be shown either in a second language or in a technical discipline bearing on the student's research work, such as one of the natural sciences.

In the spring of the third year, the student will prepare for the Ph.D. candidacy examination, taken in the late summer. This will consist of two parts, written and oral. The examination board will consist of five faculty members appointed jointly by the HPS program director and the director of graduate studies in history. Each examiner will set a two-hour written examination in one of five fields, two of which will be in specialized areas in the history of science and technology, two in other history fields, and one in the philosophy of science. The oral examination will be given shortly after the written and will involve the same five examiners.

Once Ph .D. candidacy requirements have been completed, the student will begin preparation of a dissertation proposal under the guidance of a research director of his or her choice. This is presented to a proposal evaluation committee, consisting of five faculty chosen jointly by the HPS program director, the student's research director, and the DGS of history. After meeting with the student to discuss the proposal, the committee will decide, by majority vote, to approve, reject, or request modifications in the candidate's proposal. The Graduate School requires that dissertation proposals be approved by the end of the eighth semester in order for one to be eligible for continued funding. When the proposal is approved, the student will work under the direction of his or her thesis director to prepare a dissertation that must be approved by the director and three readers appointed by the HPS program director, normally drawn from the committee that approved the original proposal. Substitution of one outside expert may be elected if deemed necessary for the student's dissertation work. If the readers accept the dissertation, the program director arranges for a dissertation defense. The defense committee is composed of at least the dissertation director, the three dissertation readers, and an outside chairperson appointed by the Graduate School. After the defense and ensuing discussion, the committee decides by majority vote whether the defense of the dissertation project has been satisfactory and determines whether any revisions of the dissertation are required as a result of weaknesses revealed in the oral defense.

## Teaching and Research Faculty

J. Matthew Ashley, Associate Professor of Theology and Fellow in the Center for Social Concerns

Katherine A. Brading, Assistant Professor of Philosophy

Jon Coleman, Assistant Professor of History

Michael Crowe, John J. Cavanaugh Professor in the Humanities, Professor in the Program of Liberal Studies, and Concurrent Professor of History, Emeritus
Christopher B. Fox, Professor of English and Director of the Keough Institute for Irish Studies

Robert D. Goulding, Assistant Professor in the Program of Liberal Studies
Gary M. Gutting, the Notre Dame Professor of Philosophy and Fellow in the Nanovic Institute for European Studies

Christopher S. Hamlin, Professor of History, Fellow in the John J. Reilly Center for Science, Technology, and Values, and Fellow in the Nanovic Institute for European Studies

Don A. Howard, Director, Professor of Philosophy, and Fellow in the Nanovic Institute for European Studies

Anja Jauernig, Assistant Professor of Philosophy

Lynn S. Joy, Professor of Philosophy
Janet Kourany, Associate Professor of Philosophy

Vaughn R. McKim, Associate Professor of Philosophy, Emeritus
A. Edward Manier, Professor of Philosophy, Emeritus

Philip E. Mirowski, the Carl E. Koch Professor of Economics

Grant Ramsey, Assistant Professor of Philosophy

Kristin Shrader-Frechette, the F. J. and H. M. O'Neill Professor of Philosophy, Concurrent Professor of Biological Sciences, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Phillip R. Sloan, Professor in the Program of Liberal Studies and Concurrent Professor of History
Thomas A. Stapleford, Assistant Professor in the Program of Liberal Studies

James C. Turner, the Rev. John J. Cavanaugh, C.S.C., Professor of the Humanities and Fellow in the Nanovic Institute for European Stu

## Ph.D. in Literature

Program Director:
Joseph A. Buttigieg
Telephone: (574) 631-0481
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E-mail: litprog@nd.edu
Web: http://phdliterature.nd.edu

## The Program of Studies

The Ph.D. in Literature offers an innovative academic framework for the formation of future scholar-teachers in both the classical and modern languages and literatures. During their first year of studies in the Ph.D. in Literature Program, students will work closely with the program's director to define their major fields or areas of interest. This will enable them to choose their courses in a coherent manner so that in the years devoted to coursework they will be able to simultaneously broaden and deepen their knowledge in their main fields of interest. There are many different ways to define and structure one's area of specialization and related fields. These fields of interest may be organized, for example, around historical periods, genres, literary movements, literary traditions and languages, geographical areas, interdisciplinary relations, literary theory and criticism. These are just some rather conventional examples, used here by way of illustration, but there are many other imaginative and creative ways to define one's interests and their combinations-and the Ph.D. in Literature Program is sufficiently flexible to accommodate a wide range of them.

The program requires its students to complete a minimum of 54 credit hours from regular graduate courses. Students who have obtained credits for graduate courses taken after their undergraduate degree and prior to entering the program may be allowed to transfer a maximum of 6 credit hours. Students who have completed an M.A. before entering the program may be allowed to transfer a maximum of 24 credit hours. The transfer of credit hours is not automatic and requires the approval of the program's director and the Graduate School.

During their first three semesters students are required to take the program's two basic courses: (a) the course in literary and critical theory, and (b) the course in literature that exemplifies transnational and/or interdisciplinary approaches to literary studies.

All students are also required to take two courses in disciplines other than literature. This requirement is typically fulfilled by taking courses in philosophy and theology.

In both their second and third year of study students are required to enroll in the year-long course ( 1.5 credits per semester) "Learning the Profession." Students may opt to take this course on an $S / U$ basis, in which case the credits earned will not count towards the 54 credits of coursework required by the program.

## Languages

All students in the Ph.D. in Literature Program are expected to be able to read and conduct research in at least two languages besides their own native language.

Students are minimally required to demonstrate near-native proficiency in the language of their major area of study and a scholarly reading knowledge in an additional language. The language skills required will vary according to the individualized program of study. Language requirements are designed to provide a rigorous base for in-depth study of two or more literary traditions and to ensure that students will successfully compete for placement in national literature departments as well as interdisciplinary programs.

## Examinations

The Permission to Proceed Exam is administered during the week immediately before the beginning of classes in the Spring semester of the student's second year in the program. The exact date is set by the program director at the start of each academic year. (After seeking the advice of the program director, a student may opt to take the exam earlier.)

The Graduate School requires all doctoral candidates to complete their Ph. D. candidacy exam by the end of their fourth year of study. This deadline, however, represents nothing more than the utmost limit of acceptability. Students in the Ph.D. in Literature Program are strongly advised to organize and structure their coursework in a manner that permits them to sit for the candidacy exam in their third year.

## Participating Faculty

The following is a partial list of Notre Dame faculty who have worked closely with the Ph.D. in Literature Program. They form a core group of outstanding scholars who will be joined by numerous other faculty whose interests and expertise will enable students to craft doctoral degrees responsive to their own particular interests in world literatures. For a complete listing of participating faculty and their scholarly interests and current graduate students please visit our Web site at http://phdliterature.nd.edu.

## Associated Teaching and Research Faculty

Samuel Amago, Associate Professor, Department of Romance Languages and Literatures

José Anadón, Professor, Department of Romance Languages and Literatures
Martin Bloomer, Associate Professor of Classics
Maureen Boulton, Professor of French, Department of Romance Languages and Literatures

Keith R. Bradley, the Eli J. and Helen Shaheen Professor of Classics and Concurrent Professor of History

Joseph A. Buttigieg, Director of the Ph.D. Program in Literature, the William R. Kenan Jr. Professor of English and Fellow in the Nanovic Institute for European Studies

Theodore J. Cachey Jr., Professor of Italian, Albert J. Ravarino Family Director of Dante and Italian Studies, and Chair, Department of Romance Languages and Literatures

James Collins, Professor, Department of Film, Television, and Theatre

Seamus Deane, the Donald and Marilyn Keough Professor of Irish Studies and Professor of English

JoAnn DellaNeva, Professor, Department of Romance Languages and Literatures Fellow, the Kaneb Center for Teaching and Learning Fellow, the Nanovic Institute

Margaret Doody, the John and Barbara Glynn Family Professor of Literature
Julia V. Douthwaite, Professor of French, Department of Romance Languages and Literatures

Maud Ellmann, Donald and Marilyn Keough Professor of Irish Studies, Department of English

Christopher Fox, Director of the Keough Institute for Irish Studies, Professor of English and Chair of Irish Language and Literature
Stephen Gersh, Professor, Department of Philosophy

Thomas Hall, Associate Professor, Department of English

Ben A. Heller, Associate Professor, Department of Romance Languages and Literatures, CoDirector, Fernández Caribbean Initiative Fellow, Kellogg Institute for International Studies
Vittorio Hösle, Paul G. Kimball Professor of Arts and Letters, Director, Notre Dame Institute for Advanced Study, and Professor of German

Lionel M. Jensen, Associate Professor of East Asian Languages and Literatures, Concurrent Associate Professor of History, and Fellow in the Helen Kellogg Institute for International Studies

Silvia Li-chun Lin, Associate Professor, Department of East Asian Languages and Culture, Executive Fellow, College of Arts and Letters

Christian Moevs, Associate Professor, Department of Romance Languages and Literatures, and Fellow of the Medieval Institute

Bríona Nic Dhiarmada, Endowed Professor, Notre Dame Chair in Irish Language and Literature

Robert E. Norton, Chair and Professor of German and Russian Languages and Literatures (German) and Fellow in the Nanovic Institute for European Studies

Maria Rosa Olivera-Williams, Associate Professor, Department of Romance Languages and Literatures

Alison Rice, Assistant Professor, Department of Romance Language and Literature

Mark W. Roche, The Rev. Edmund P. Joyce, C.S.C. Professor of German Language and Literature, Concurrent Professor of Philosophy
Steve Tomasula, Associate Professor, Department of English and Director of Graduate Studies in Creative Writing

Isabelle Torrance, Assistant Professor, Department of Classics

Alain Toumayan, Professor of French, Department of Romance Languages and Literatures, Director, Program in Philosophy and Literature and Fellow in the Nanovic Institute for European Studies

## Medieval Studies

Director:
Olivia Remie Constable
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Web: http://www.nd.edu/~medinst

## The Program of Studies

The Medieval Institute offers a Doctor of Philosophy degree in Medieval Studies. After two years of course work, students earn a Master of Medieval Studies (hereafter M.M.S.) degree. The Institute does not accept candidates for a terminal Master's degree. The programs of the Medieval Institute are rigorous and interdisciplinary, and make high demands in terms of
language skills. Accordingly, the Doctor of Philosophy in Medieval Studies requires a further year of full-time study beyond the M.M.S., plus a dissertation. Each degree requires a specified number of credit hours, language exams, oral and/or written exams, proficiency in paleography, and research projects.

Students admitted with a master's degree from another institution, or from another department at Notre Dame, may take the M.M.S. exams after completing MI 60001 and six graduate-level courses; passing the M.M.S.-level Latin exam; passing an exam in at least one modern language; and passing the paleography course if it was offered in the student's first year of enrollment (if paleography was not offered it may be postponed until the following summer or academic year).

## The Master of Medieval Studies

The M.M.S. requires the successful completion of 31 credit hours of graduate-level work but fully and continuously enrolled M.M.S. students will normally earn forty or more credits in their first two years of study. The apparent discrepancy is attributable to the fact that M.M.S. students are, in fact, prospective Ph.D. students in transition. The credits which M.M.S. students earn above those required for the M.M.S. degree will apply to the Ph.D. provided that a student has been admitted to Ph.D. candidacy.

The program for an M.M.S. student will normally be arranged as follows:

Semester 1:
Christian Latin (or graduate intermediate Latin, with permission of the Institute director)
Elective
Elective
Elective
MI 60001 (one credit, non-graded)
Semester 2:
Medieval Latin
Elective
Elective
Elective
Summer:
Medieval Latin or Paleography
Semester 3:
Paleography (or Elective)
Second-year Research Tutorial I
Elective
Semester 4:
Elective
Second-year Research Tutorial II
Exam Preparation
Among the eight (or nine) courses designated as "electives," four must be chosen so as to satisfy the following requirements: One course

## MEDIEVAL STUDIES

each in history (Proseminar I or II), philosophy or theology, vernacular language or literature, art or music. Students have considerable flexibility in choosing the remaining four (or five) courses, the research tutorial, and the exam preparation course.

In May of their first year of study each first-year student will meet with the director to discuss his or her progress. All teachers with whom a student has worked in the first year will be asked to submit written reports on that student's work in specific classes. The director will advise students on their progress with two perspectives in mind: completion of degree requirements and intellectual growth.

By the end of his or her second year an M.M.S. student must have:

1. Passed the M.M.S.-level Latin examination.
2. Passed an examination in one modern language.
3. Passed paleography (if it was offered).
4. Submitted a satisfactory second-year research paper.
5. Passed a 90-minute oral examination.

The M.M.S. oral examination will provide students with an opportunity to display their general competence in three disciplines and their emerging mastery in one of them. It is expected that the student will be examined by four different professors who represent three disciplines (for the full list of acceptable disciplines and possible examination fields within them, see below). One of the three disciplines, the student's primary discipline, will be examined by two professors. It is expected that this discipline will form the core of the eventual Ph.D. candidacy examination. Accordingly, this discipline will be examined in somewhat greater length and detail than the other two. The selection of examiners is made by the student in consultation with the director. Students must submit to the director, early in their fourth semester of enrollment, the reading lists over which they expect to be examined. These lists must be prepared in consultation with and signed by the relevant examining professor. The M.M.S. examinations will be administered in early April, but not during Holy Week.

Second-year research projects will be submitted and collaboratively evaluated on or before April 30 of a student's second year. At the beginning of their third semester of study each student will select a member of the faculty with whom he or she will undertake an intensive program of reading in primary sources (preponderantly in the original language) and scholarly literature with a view to identifying a worthwhile, original research project. Once the topic has been identified, the student and teacher will settle on a plan of work such that the resulting paper can be submitted to the teacher, the director, and (perhaps) one more member of the faculty.

A student who has produced a substantial seminar paper in his or her second semester, or who expects to do so in the third semester, may petition the director to use that paper for the second-year research project. In such cases, students will be expected to expand and polish the paper during the early part of the fourth semester. When this option is elected, students may substitute a different class for the Secondyear Research Tutorial I but must still register for Second-year Research Tutorial II.

The Medieval Institute's M.M.S.-level Latin examination will be administered each fall semester in the week after Thanksgiving and each spring semester in the week after spring break.

In the first week of May of each year the director and the graduate committee will review the accomplishments of the members of the second-year class. There will be four possible recommendations:

1. Permission to proceed to the Ph.D.
2. Permission to repeat/complete a deficient element in the M.M.S. requirements with the expectation that the M.M.S. will be terminal.
3. Award of the M.M.S. as a terminal degree.
4. Dismissal without the M.M.S. degree.

## The Doctor of Philosophy in Medieval Studies

The Ph.D. requires: one additional year of course work beyond the M.M.S., the successful completion of at least 60 credit hours of study, one additional examination in a modern language, completion of paleography if it was postponed from year two of the M.M.S., successful completion of five written Ph.D. candidacy examinations (one of three hours' and four of two hours' duration), one oral Ph.D. candidacy examination (normally of 90 minutes' duration), presentation of a dissertation proposal, presentation and defense of a satisfactory dissertation.

Third-year course work normally consists of two or three courses taken in the fall semester, followed by a spring semester devoted to MI 77001 (Field Examination Preparation).. Ph.D. candidacy exams are based on the totality of a student's course work and five reading lists prepared in close consultation with five examiners. Normally, three lists (and, therefore, examiners) will represent one discipline. A fourth list/examiner may represent a substantially different field within that discipline. Typically, two lists/examiners will represent disciplines outside the major discipline but closely related to it intellectually, chronologically, or methodologically. It is expected that a student will retain at least three examiners from the M.M.S. oral exam for the Ph.D. candidacy exam. One candidacy list/examiner
may be drawn for outside the Medieval Institute faculty. Students preparing for candidacy examinations must submit to the director complete reading lists, signed by their examiners, by January 15 of their sixth semester. Written candidacy exams will normally be scheduled in the third week of April. Ph.D. oral exams will normally be scheduled in the fourth week of April. Students will write a three-hour examination in their major field of study and two-hour exams in the other four fields. The oral exam, chaired by the student's adviser, will usually last 90 minutes but may extend to 120 minutes.

In early May each year the director and the graduate committee will review the accomplishments of the members of the third-year class. There will be three possible recommendations.

1. Permission to proceed to the dissertation proposal.
2. Requirement to re-take the Ph.D. examinations in the following Septem-
ber with the possibility at that time to recommend continuation or dismissal.
3. Dismissal with only an M.M.S. degree.

The dissertation proposal is expected to be submitted not later than November 1 in the fall semester of the student's fourth year. To facilitate preparation of the proposal, rising fourth-year students will be provided with summer stipends to permit them several months of continuous work after the Ph.D. examinations. Every student must submit a dissertation proposal of 20 to 25 pages. The dissertation proposal may consist of as many as three parts. This proposal should answer three basic questions: What questions/problems/issues will this dissertation address? Why should this dissertation be written at all, in other words what will be its original and significant contribution to scholarship? What is the envisaged plan of work? The proposal should conclude with 3 to 5 pages of annotated bibliography.

Proposals will be discussed in a 60 to 90 minute session with the adviser, the director (if he or she wishes to attend), another professor from the field of emphasis, and the interdisciplinary examiner from the Ph.D. exams (or an appropriate substitute).

When a student and his or her adviser agree that a dissertation is ready to be defended, documents should be filed in the Medieval Institute and the Graduate School to initiate a defense. Defense committees will consist of five members of the faculty: one, the chair, who is appointed by the Graduate School and does not vote; the student's adviser; and three chosen by the student and his or her adviser in consultation with the director. The director may appoint him/herself as an examiner of any dissertation submitted to the Medieval Institute. At least one dissertation examiner in
addition to the Graduate School representative must come from a department other than the one in which the student's field of emphasis resides. A student may petition the director and the Graduate School to have one examiner from outside the University. In such cases, the Medieval Institute will sustain reasonable costs for such an outside examiner.

## Fields of Study

"Fields" represent segments of vast disciplines. No student, or professor, can be expected to know all there is to know within any one of them. Accordingly, fields will be defined, for purposes of study and examination, by reading lists created by students in close consultation with their professors. A student whose primary discipline is, say, history, will choose at least three fields within history (and may, for Ph.D. candidacy exams choose another field in history outside the Middle Ages). Reading lists may emphasize primary sources, exciting recent scholarship, classic works of scholarship, or a combination of the three. Required reading may mean either books or articles. Students and faculty members will be expected to strike the appropriate balance depending upon the needs and traditions within particular academic fields. As rough guidelines, M.M.S. lists should amount to 25-30 primary texts or books (or the equivalent in articles) and Ph.D. lists should amount to 50 to 60 primary texts or books (or the equivalent in articles).

The following disciplines, with fields (or examination fields) are currently available:

## Art History

Late Antique Art
Early Medieval Art
Later Medieval Art
Byzantine Art
Renaissance Art
History
Late Antiquity
The Early Middle Ages
The High Middle Ages
The Late Middle Ages
The Renaissance
The Mediterranean World
The Islamic World
Byzantium
The Medieval Church
Medieval Intellectual History
Medieval Economic History
Language and Literature
Arabic
Dante and/or Petrarch and/or Boccaccio
Old English
Middle English
Old French
Middle French
Old High German
Middle High German
Late Antique Latin
Medieval Latin

Renaissance Latin
Medieval Spanish Literature
Manuscript Studies
Codicology
Paleography
Text Editing
Music
Musicology
Music History
Philosophy
Late Antique Philosophy
Early Medieval Philosophy
High Medieval Philosophy
Late Medieval Philosophy
Medieval Islamic Philosophy
Medieval Jewish Philosophy
Theology
Greek Patristic Theology
Latin Patristic Theology
Early Medieval Theology
High Medieval Theology
Late Medieval Theology
Byzantine Theology
Islamic Theology
Medieval Jewish Theology

## Faculty in the Medieval Institute

Rev. Joseph P. Amar, Associate Professor of Classics and Concurrent Associate Professor of Theology

Ann Astell, Professor of Theology
Charles E. Barber, the Michael P. Grace Professor of Arts and Letters and Chair and Professor of Art, Art History, and Design

Alexander Blachly, Professor of Music
W. Martin Bloomer, Associate Professor of Classics

Maureen B. McCann Boulton, Professor of French Language and Literature
Keith R. Bradley, the Eli J. and Helen Shaheen Professor of Classics and Concurrent Professor of History

Theodore J. Cachey Jr., Professor of Italian Language and Literature, the Albert J. Ravarino Family Director of Dante and Italian Studies; and Chair of Romance Languages
John C. Cavadini, Chair and Associate Professor of Theology, and Director of the Institute for Church Life

Robert R. Coleman, Associate Professor of Art, Art History, and Design, and Research Specialist in the Medieval Institute

Olivia Remie Constable, Professor of History and Robert M. Conway Director of the Medieval Institute

Richard Cross, Rev. John A. O'Brien Chair in Philosophy
Lawrence Cunningham, Rev. John A. O'Brien Professor of Theology

Rev. Brian Daley, S.J., the Catherine F. Huisking Professor of Theology

JoAnn DellaNeva, Associate Professor of French Language and Literature

Rev. Michael S. Driscoll, Associate Professor of Theology

Stephen D. Dumont, Chair and Professor of Philosophy

Kent Emery Jr., Professor in the Program of Liberal Studies

Margot Fassler, Keough-Hesburgh Professor of Music History and Liturgy
Alfred Freddoso, John and Jean Oesterle Professor of Thomistic Studies

Dolores Warwick Frese, Professor of English
Stephen E. Gersh, Professor
Robert Goulding, Assistant Professor in the Program of Liberal Studies and the Program in the History and Philosophy of Science

Brad S. Gregory, Associate Professor of History
Li Guo, Associate Professor of Classics
Thomas N. Hall, Associate Professor of English.

Peter Holland, McMeel Family Professor in Shakespeare Studies
Rev. John I. Jenkins, C.S.C., President of the University and Professor of Philosophy

Danielle B. Joyner. Assistant Professor of Art, Art History, and Design

Encarnación Juárez-Almendros, Associate Professor of Spanish Language and Literature
Kathryn Kerby-Fulton, Notre Dame Professor of English

Mary M. Keys, Associate Professor of Political Science

Brian Krostenko, Associate Professor of Classics.

Blake Leyerle, Associate Professor of Theology and Concurrent Associate Professor of Classics

Sabine G. MacCormack, Rev. Theodore M.
Hesburgh, C.S.C. Professor of Arts and Letters in History and Classics

Margaret H. Meserve, Carl E. Koch Assistant Professor of History

Christian R. Moevs, Associate Professor of Italian Language and Literature

Hildegund Müller, Associate Professor of Classics

Thomas F. X. Noble, Chair and Professor of History
David O'Connor, Associate Professor of Philosophy and Concurrent Associate Professor of Classics

Mark C. Pilkinton, Professor of Film, Television, and Theatre
Jean Porter, John A. O'Brien Professor of Theology

Rory Rapple, Assistant Professor of History
Gretchen J. Reydams-Schils, Professor in the Program of Liberal Studies
Gabriel Said Reynolds, Associate Professor of Theology

Robert E. Rodes, Jr., the Paul J. Schierl/Fort Howard Corporation Professor of Legal Ethics

John Roos, Professor of Political Science
Charles M. Rosenberg, Professor of Art, Art
History, and Design
Dayle Seidenspinner-Núñez, Professor of Spanish Language and Literature

Susan Guise Sheridan, the Nancy O'Neill II Associate Professor of Anthropology

John Van Engen, the Andrew V. Tackes Professor of History
Joseph Wawrykow, Associate Professor of Theology
Albert K. Wimmer, Associate Professor of German Language and Literature

Robin Darling Young, Associate Professor of Theology

Katherine G. Zieman, Assistant Professor of English

## Philosophy

Chair:
Stephen D. Dumont
Director of Graduate Studies:
Patricia A. Blanchette
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Web: http://www.nd.edu/ -ndphilo

## The Program of Studies

For the doctorate a student must complete 42 credit hours of graduate course work. Students
who enter the doctoral program with an M.A. are normally excused from six to 12 credit hours of graduate course work. Any philosophy graduate student is permitted to take up to six credit hours of approved undergraduate course work in philosophy and up to six credit hours of course work in related fields to satisfy the 42 credit hours. Those who choose to concentrate in such specialized fields as logic and philosophy of science may be required to take courses in other departments in support of their specialization. Students are expected to maintain a minimum $B$ average in all of their course work.

## Course Requirements

Doctoral students are required to complete fourteen regular 3-unit seminars, including seminars satisfying breadth requirements in each of the following areas:

1. History of philosophy:
(a) Ancient philosophy
(b) Medieval philosophy
(c) Modern philosophy
2. Metaphysics
3. Epistemology
4. Ethics
5. Philosophy of science
6. Symbolic logic

Designated "core" seminars in metaphysics, epistemology, ethics, philosophy of science, and symbolic logic satisfy the requirements in those areas. The requirements in history of philosophy may be satisfied by taking any of a number of approved graduate courses offered in each historical area. No course may be used to satisfy more than one general area requirement.

Beginning students are encouraged to complete the requirements as early as is feasible, generally within the first two or two-and-a-half years. In addition to the courses listed above, graduate students are required to take a practicum for teaching assistants (PHIL 85104) before TAing for the first time, a practical seminar on teaching (PHIL 85105) during their fourth year, and the Dissertation/Placement seminar near the end of their studies.

## Non-Course Requirements

1. History Exam: At the end of the summer following the first year of coursework, students are required to take a six-hour written exam in the history of philosophy. The exam is given in two parts, with three hours covering ancient and medieval philosophy, and three hours covering modern philosophy. This requirement, together with the Oral Comprehensive Exam (\#4 below) constitute the candidacy examination for the Ph.D.
2. Most students will require expertise in a foreign language, typically at least one of French, German, Greek, and Latin, in order to
complete their research and to have the capacity for further scholarly work in their field. The dissertation director and Director of Graduate Studies will determine in each case the level of expertise required, and the student will not be permitted to defend the dissertation until demonstrating that level of expertise. The usual way of demonstrating sufficient expertise is by passage of the departmental translation exam by the end of the semester after the semester in which the dissertation proposal is approved. In individual cases, passage of the exam prior to approval of the dissertation proposal may be required.
3. Second-Year Paper: At the end of the summer following the second year of coursework, students are required to submit a research paper exhibiting their capacity for independent research. For details on the requirements for this paper, see the departmental guidelines.
4. Oral Comprehensive Exam: Typically taken during the third year of residency, the Oral Comprehensive Exam constitutes the second part (see "History Exam," above) of the Ph.D. candidacy exam. It consists of a one-and-one-half-hour oral examination by a board of five faculty examiners. Four votes of "pass" are needed to pass the exam. (In exceptional circumstances, the Director of Graduate Studies may give permission for an examining board of four faculty members, in which case three votes of "pass" are required in order to pass the exam.) To maintain financial eligibility, this requirement (together with the Dissertation Proposal; see below) must be satisfied by the end of the eighth semester of enrollment. The purpose of the oral comprehensive examination is to confirm a candidate's readiness to begin significant research in his or her chosen area of concentration. Areas of concentration available in the department for the oral examination and for subsequent dissertation research include:

> Ancient philosophy
> Medieval philosophy
> History of modern philosophy
> Contemporary European philosophy
> Epistemology
> Ethics
> Logic
> Metaphysics
> Philosophy of language
> Philosophy of mathematics
> Philosophy of mind
> Philosophy of religion
> Philosophy of science
> Political philosophy
5. Dissertation Proposal: After passing the oral exam, students submit a dissertation proposal, written in consultation with the student's dissertation director. The proposal consists of a ca. 12-page narrative description of the issue to be addressed, its significance in current scholarship, and the main conclusions to be defended; a 3-5 page chapter outline; and a

1 -page bibliography. The proposal is evaluated by the Dissertation Proposal Committee, appointed by the Director of Graduate Studies and consisting of the dissertation director together with four other members of the graduate faculty. No more than one member of this committee may come from outside the Philosophy Department. The dissertation proposal counts as "approved" when all five members of the committee have approved it. To maintain financial aid eligibility, the proposal must be approved by the end of the eighth semester of enrollment. Once the dissertation proposal is approved, a meeting is scheduled for the student and the committee in order for the committee to provide guidance concerning the research and writing of the dissertation.
6. Dissertation and Defense: Having completed the doctoral candidacy requirements. and formulated an acceptable doctoral thesis proposal, the candidate is expected to complete a doctoral dissertation during the fourth or fifth year of residence. When the dissertation is completed and approved by the dissertation director, three copies are submitted to the Director of Graduate Studies. These are distributed to three readers, chosen by the Director of Graduate Studies in consultation with the student and dissertation director. The readers will ordinarily be chosen from the members of the Dissertation Proposal Committee. No more than one reader may be from outside the Philosophy Department. After the three readers have approved the dissertation, the Philosophy Department and the Graduate School will arrange for a Dissertation Defense. The director and readers may require revisions of the dissertation as a result of weaknesses revealed in the oral defense. At the end of the defense, the director and readers decide whether the student has passed or failed the defense. Three votes out of four are required to pass the defense.

## Evaluation

The faculty as a whole periodically evaluates the progress of all students. Evaluations focus on students' performance in courses, in non-course requirements, and in their roles as teaching assistants and teachers. If the faculty judge at any stage that a student's progress is unsatisfactory, the student may be required to terminate his or her graduate studies. A student may receive a nonresearch M.A. degree in philosophy after finishing 27 credit hours of graduate course work and passing a special M.A. oral candidacy examination. (Continuing students may receive a nonresearch M.A. upon successful completion of the written Ph.D. candidacy examinations (history exam) and 27 credit hours of graduate course work.)

Further details regarding requirements, and regarding the department's many special programs and activities, can be found on the department's website.

## Teaching and Research Faculty

Karl Ameriks, the McMahon-Hank Professor and Fellow in the Nanovic Institute for European Studies
Robert Audi, Professor of Philosophy and
David E. Gallo Chair in Ethics
Timothy Bays, Associate Professor
Patricia A. Blanchette, Director of Graduate Studies and Associate Professor
Katherine Brading, Assistant Professor
Richard Cross, the John A. O'Brien Professor of Philosophy
Marian A. David, Professor
Cornelius F. Delaney, Professor
Michael R. De Paul, Professor
Michael Detlefsen, McMahon-Hank Professor of Philosophy
Stephen D. Dumont, Chair and Professor
Thomas P. Flint, Professor
Curtis Franks, Assistant Professor
Alfred J. Freddoso, the John and Jean Oesterle Professor of Thomistic Studies

Gary M. Gutting, Notre Dame Professor of Philosophy and Fellow in the Nanovic Institute for European Studies
Don A. Howard, Director of Graduate Studies in History and Philosophy of Science and Professor of Philosophy
Anja Jauernig, Assistant Professor
Rev. John I. Jenkins, C.S.C., President of the University and Professor

Lynn Joy, Professor
Joseph Karbowski, Assistant Professor
Sean Kelsey, Associate Professor
Janet Kourany, Associate Professor
Michael J. Loux, the George N. Shuster Professor of Philosophy

Alasdair MacIntyre, Rev. John A. O'Brien Senior Research Professor of Philosophy
Samuel Newlands, Assistant Professor
John O'Callaghan, Associate Professor
David K. O'Connor, Associate Professor of Philosophy and Concurrent Associate Professor of Classics

Alvin Plantinga, the John A. O'Brien Professor of Philosophy

Grant Ramsey, Assistant Professor

Michael C. Rea, Director of the Center for Philosophy of Religion and Professor
Fred Rush, Associate Professor
Kenneth M. Sayre, Professor
Kristin Shrader-Frechette, the F. J. and H. M. O'Neill Professor of Philosophy, Concurrent Professor of Biological Sciences, and Fellow in the Joan B. Kroc Institute for International Peace Studies

William D. Solomon, Associate Professor and the W. P. and H. B. White Director of the Center for Ethics and Culture

Jeffrey Speaks, Assistant Professor
James P. Sterba, Professor and Fellow in the Joan B. Kroc Institute for International Peace Studies
Leopold Stubenberg, Associate Professor
Peter van Inwagen, the John Cardinal O'Hara Professor of Philosophy
Ted A. Warfield, Professor
Stephen H. Watson, Professor
Paul J. Weithman, Professor

## Romance Languages and Literatures

Chair:
Theodore J. Cachey
Director of Graduate Studies:
John P. Welle
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E-mail: romlang@nd.edu
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## The Program of Studies

The master's programs encourage the student to work closely with his/her adviser to design a course of study to suit individual needs, interests, and future goals. All candidates for an advanced degree are expected to take a minimum of 30 credit hours of courses in their field of specialization, including "Introduction to Literary Criticism" and a graduate course in comparative Romance literature.

During the second semester of the first year of graduate study, the student must pass an oral qualifying examination. The master's candidate will choose from a selection of texts and must demonstrate competency in analyzing a literary text in the target language before the graduate
faculty. At this time, faculty members will discuss and evaluate the student's performance in the master's program.

Before taking the comprehensive written examination at the end of the second year, the student must demonstrate competency in a second foreign language by passing a reading exam or through successful completion of appropriate course work.

Students preparing for a career in teaching have the opportunity to teach several language courses before completion of the master's degree. A preliminary workshop, "Methods of Foreign Language Teaching" and "Practicum in Teaching" are required of all graduate teaching assistants.

## Program in French and Francophone Studies

Course requirements. All candidates for a master's degree in French and Francophone Studies are required to take a minimum of 30 credit hours or 10 courses, in addition to the required courses in pedagogy for teaching assistants (if applicable). "Introduction to Literary Criticism," required of all students, is taken during the first year of residence. In addition, the minimum of 10 courses includes at least six courses in French and Francophone literature and one course in comparative Romance literature. Two courses may be in a second national literature or in an allied field; students taking both courses in the same national literature or in comparative literature will be designated as having fulfilled a minor in that field. Occasionally, at the invitation of the program faculty, these two courses may instead be fulfilled by writing a master's thesis under the direction of a faculty member in the department. Two of the 10 courses may be at the 40000 level.

Comprehensive Master's Examination. For the final written examination, the student chooses five of seven fields (medieval, Renaissance, 17th century, 18th century, 19th century, 20th century, Francophone) in which to be examined. At least two of these five fields must be prior to the 18th century (i.e., medieval, Renaissance, or 17 th century). Each area will be tested for a total of one hour.

Combined B.A./M.A. Program in French and Francophone Studies. The Department of Romance Languages and Literatures offers its majors in French the opportunity to participate in its graduate program through a combination B.A./M.A. degree in French. This program requires students to complete a first major in French (i.e., at least 30 hours of course work) during the normal four-year undergraduate period, followed by a total of 30 credit hours of graduate courses taken during the fourth and fifth years in residence. Six credit hours will be counted toward both the undergraduate
and the graduate degrees. During their senior year, participants in this program complete two graduate courses, take the qualifying exam given to all first-year graduate students, and apply to the Graduate School for admission during the spring semester. B.A./M.A. students are eligible for a teaching fellowship during their fifth year that includes a tuition waiver and a generous teaching stipend. Well-qualified students who are interested in this program should contact the director of graduate studies or the graduate coordinator in French at the beginning of their junior year.

## Program in Italian Studies

Course requirements. All candidates for a master's degree in Italian Studies are required to take a minimum of 30 credit hours or 10 courses. "Introduction to Literary Criticism," required of all students, is taken during the first year of residence. The minimum of 10 courses includes four to six courses in Italian literature (two of these courses may be taken at the 40000 level) and one course in Comparative Romance Literature. The remaining credit hours may be fulfilled through Italian studies courses in Italian literature, history, art history, philosophy, music, architecture, and comparative literature.

Comprehensive Master's Examination. The written master's examination is four hours in length and covers the following areas: Medieval, Renaissance, 17th and 18th centuries, 19th century, and 20th century. The exam tests the candidate's knowledge of two areas of concentration and competency in the remaining fields.

## Combined B.A./M.A. Program in Italian Studies.

The Department of Romance Languages and Literatures offers its majors in Italian Studies the opportunity to participate in its graduate program through a combination B.A./M.A. degree in Italian Studies. This program requires students to complete a first major in Italian (i.e., at least 30 hours of course work) during the normal four-year undergraduate period, followed by a total of 30 credit hours of graduate courses taken during the fourth and fifth years in residence. Six credit hours will be counted toward both the undergraduate and the graduate degrees. During their senior year, participants in this program complete two graduate courses, take the qualifying exam given to all first-year graduate students, and apply to the Graduate School for admission during the spring semester. B.A./M.A. students are eligible for a teaching fellowship during their fifth year that includes a tuition waiver and a generous teaching stipend. Well-qualified students who are interested in this program should contact the director of graduate studies or the graduate coordinator in Italian Studies at the beginning of their junior year.

## Program in Iberian and Latin American Studies

Course requirements. All candidates for a master's degree in Iberian and Latin American Studies are required to take a minimum of 30 credit hours or 10 courses. "Introduction to Literary Criticism," required of all students, is taken during the first year of residence. The minimum of 10 courses includes at least six courses in Iberian and Latin American literature and one course in Comparative Romance Literature; when appropriate, a course in art, history, philosophy, or another allied field may substitute for the Comparative Romance Literature course with permission. Two of the 10 courses may be at the 40000 level.

Comprehensive Master's Examination. For the final written examination, the student will be examined in eight fields. The fields include: medieval, Golden Age, 18th- and 19th-century peninsular, 20th-century peninsular; colonial Spanish American, Independence through Realism/Naturalism, "modernism" through the Avant Garde, and contemporary Spanish American.

## Combined B.A./M.A. Program in Iberian and Latin

 American Studies. The Department of Romance Languages and Literatures offers its majors in Spanish the opportunity to participate in its graduate program through a combination B.A./M.A. degree in Spanish. This program requires students to complete a first major in Spanish (i.e., at least 30 hours of course work) during the normal four-year undergraduate period, followed by a total of 30 credit hours of graduate courses taken during the fourth and fifth years in residence. Six credit hours can be counted toward both undergraduate and graduate degrees. During their senior year, participants in this program complete two graduate courses, take the qualifying exam given to all first-year graduate students, and apply to the Graduate School for admission during the spring semester. B.A./M.A. students are eligible for a teaching fellowship during their fifth year that includes a tuition waiver and a generous teaching stipend. Well-qualified students who are interested in this program should contact the director of graduate studies and/or the graduate coordinator in Spanish at the beginning of their junior year.
## Teaching and Research Faculty

Samuel Amago, Associate Professor of Spanish Language and Literature

José Anadón, Professor of Spanish Language and Literature

Thomas Anderson, Associate Professor of Spanish Language and Literature and Fellow in the Helen Kellogg Institute for International Studies

Maureen B. McCann Boulton, Professor of French Language and Literature

Patricio Boyer, Assistant Professor of Spanish Language and Literature

Theodore J. Cachey Jr., Chair, Professor of Italian Language and Literature, and the Albert J. Ravarino Director of the Devers Program in Dante Studies

JoAnn DellaNeva, Professor of French and Comparative Literature

Julia V. Douthwaite, Professor of French Language and Literature, and Fellow in the Nanovic Institute for European Studies

Isabel Ferreira, Assistant Professor of Portuguese and Brazilian Studies, and Fellow in the Helen Kellogg Institute for International Studies

Ben A. Heller, Associate Professor of Spanish Language and Literature, and Fellow in the Helen Kellogg Institute for International Studies

Kristine L. Ibsen, Professor of Spanish Language and Literature and Fellow in the Kellogg Institute for European Studies

Carlos Jerez-Farrán, Professor of Spanish Language and Literature and Fellow in the Nanovic Institute for European Studies)

Encarnación Juárez-Almendros, Associate Professor of Spanish Language and Literature

Louis A. MacKenzie Jr., Associate Professor of French Language and Literature

Christian R. Moevs, Associate Professor of Italian Language and Literature

Marisel Moreno-Anderson, Assistant Professor of Spanish

Maria Rosa Olivera-Williams, Associate Professor of Spanish Language and Literature, and Fellow in the Helen Kellogg Institute for International Studies

Catherine Perry, Associate Professor of French Language and Literature and Fellow in the Nanovic Institute for European Studies

Alison Rice, Assistant Professor of French Language and Literature

Dayle Seidenspinner-Núñez, Associate Dean, College of Arts and Letters, and Professor of Spanish Language and Literature

Alain P. Toumayan, Professor of French Language and Literature and Fellow in the Nanovic Institute for European Studies

Hugo J. Verani, Guest Research Professor of Spanish Language and Literature

Juan Vitulli, Assistant Professor of Spanish

John P. Welle, Director of Graduate Studies, Professor of Italian Language and Literature, Concurrent Professor of Film, Television, and Theatre, and Fellow in the Nanovic Institute for European Studies

## Theology

## Chair:

John C. Cavadini
Director of Graduate Studies:
J. Matthew Ashley

Director of M.T.S. Program:
Gabriel Said Reynolds
Director of M.Div. Program:
Rev. Michael E. Connors, C.S.C.
Director of M.S.M. Program:
Rev. Michael Driscoll, S.T.D.
Director of M.A. Program (Summer):
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## Master of Arts Program

The master of arts in theology is a terminal degree for individuals who desire advanced theological training. Graduates of this program should be able to serve as theological resources in variety of settings. Recipients of this degree will have received instruction in the classical areas of theological inquiry while acquiring expertise in one.

## Program Description

The M.A. in theology is a 42 credit-hour degree. M.A. students may take courses during the summer and/or academic year for credit towards their degree.

There are six areas of concentration for the M.A. in theology: biblical studies, history of Christianity, liturgical studies, moral theology, spirituality, and systematic theology.

Apart from liturgical studies, an area of concentration is normally constituted by:

[^1]
## Liturgical Studies

Basic requirements (21 credits) include: Liturgical history, liturgical theology, ritual studies, Eucharist, Christian initiation, liturgical prayer, and liturgical year. Students in liturgical studies will also pursue one course each in five other areas ( 15 credits), and two free electives ( 6 credits).

Those needing a more general and flexible program of studies may pursue a general M.A. program, in which the course of study is planned in consultation with the director. The sole requirement is the inclusion of at least one course in each area of study. This may be of particular interest to those teaching theology in high school who wish to use the M.A. to enhance their effectiveness in teaching in a number of different areas.

## Comprehensive Exams

In the last semester of course work, students should prepare five topics that they would like to explore in the comprehensive exams. These topics will guide both the student and the adviser in the construction of exam bibliographies. The student should then meet with the area adviser to refine these topics and construct her/his bibliography. A bibliography should be made up of 20 books, with 12 books from the bibliography in the area of concentration and two books from each of the other four areas. The bibliography should also contain five recent journal articles, so that students become acquainted with the journals in their fields of study. The bibliographies must be approved both by the area adviser and the M.A. director no later than one month before the student hopes to take exams. M.A. exams are given in November, April, and July. Students must be enrolled and registered for a thesis research class during the semester they plan to take their exams.

The exam board, to be chosen by the M.A. director in consultation with the area adviser, will be made up of two faculty from the area of concentration, and one faculty from another area. Students pursuing the general M.A. degree may have an exam board chosen from three different areas. The student may confidentially choose the inclusion of one member of the board (subject to availability), and the exclusion of one faculty member. Each member of the exam board will submit three questions, framed in light of the five topics proposed by the student, to the area adviser, who will then formulate five questions, and submit them to the summer M.A. director for final approval.

The comprehensive exams themselves are made up of written and oral exams. The student will be asked to answer three of the five questions during the four-hour written exams, given on the Monday of exam week. These written answers will then be distributed to the board

## THEOLOGY

members, and will form the basis of the $40-$ minute oral exam on Wednesday or Thursday of the same week. During the oral exams, questions not answered by the student on the written exam may be addressed, as may books on the bibliography and courses taken by the student. Evaluation of the student's performance will be made on the basis of both the written and oral exams.

## The Master of Theological Studies Program

The Master of Theological Studies (M.T.S.) program trains graduate students for future doctoral work in the various disciplines within the study of theology. The M.T.S. is a 48-credit-hour degree designed to give students exposure to the full range of theological studies while also allowing them to develop competence in an area of concentration and to improve their language abilities. Along with two years of full-time course work, the M.T.S. also includes participation in the master's colloquium, competency in one modern language, and the completion of a comprehensive oral exam to be given at the end of the second year of course work. The areas of Biblical studies and history of Christianity also have ancient language requirements.

In all there are five areas of concentration in the M.T.S. program. Students must take at least 15 credit hours in the area of their concentration. In order to introduce every M.T.S. student to a wide range of theological education, each area of study also involves requirements in other areas, as detailed below. Students may choose from a broad range of courses offered at the 60000 level. They may also take Ph.D. seminars, provided they first secure the permission of the course instructor and the M.T.S. director.

## Areas of Concentration

Biblical Studies: The concentration in Biblical Studies involves 15 credit hours in Biblical Studies, six credits in History of Christianity, and nine credits total in at least two other areas. In place of electives, Biblical Studies students will take nine credit hours in one ancient language (Greek, Hebrew, or Latin), and nine credit hours in another ancient language. There is no ancient language exam for the BS concentration.

History of Christianity: The concentration in history of Christianity involves 15 credit hours in history of Christianity (with the possibility of three to be taken outside the department), six in biblical studies, three in moral theology, three in liturgical studies, six in systematic theology, and six devoted to the study of ancient languages. Nine credit hours will be electives, to be distributed according to the interests of the students, and may include courses outside the Department of Theology (e.g., philosophy, medieval studies, history, art history, etc.), with
the prior approval of the area adviser for the history of Christianity concentration and the M.T.S. director.

Liturgical Studies: The concentration in liturgical studies involves 15 credit hours in liturgical studies, six in biblical studies, six in history of Christianity, three in moral theology, six in systematic theology, six in one ancient language (Latin or Greek), and six credits in electives.

Moral Theology: The concentration in moral theology involves 15 credit hours in moral theology, nine in a second area, six in a third area, six in a fourth area, three in a fifth area, and nine credits of electives.

Systematic Theology: The concentration in systematic theology involves 15 credit hours in systematic theology, six in biblical studies, six in history of Christianity, six in liturgical studies, six in moral theology, and nine in electives, including three credit hours in Judaism.

## Master's Colloquium

At least three times a semester all students in the M.T.S. program attend a colloquium and discuss a current student's presentation of original research pursued in collaboration with a faculty adviser. The colloquium is designed to familiarize M.T.S. students with the methods and content of the various areas of theological study, to demonstrate how these areas can be integrated, and to provide an experience of research and public presentation. Attendance is mandatory for all M.T.S. students.

## Research Language Requirement

All M.T.S. students must pass a Graduate Reading exam in either German or French in order to graduate. Students who already know one of these languages upon admission to the program should take the Graduate Reading exam in that language in their first semester, and acquire a second language during their time in the program, in order to pass an exam in that language as well.

The University offers intensive language courses in German and French, free of tuition, every summer, with exams at the end of the course. Students who wish to acquire a language other than French or German during their time in the M.T.S. Program may petition the M.T.S. director for a substitution, based entirely on their future research interests.

## Comprehensive Exams

Toward the end of the final semester of course work, M.T.S. students must pass an oral exam with a board of three faculty members. The exam measures students' competency in the area of concentration and their ability to think creatively and synthetically. The topics of the exam are based material the students themselves submit: two papers from coursework
that reflect the nature of their research interests, the Statement of Intent for applications to Ph.D. programs, and a set of three to five questions which reveal the direction of their theological inquiry.

## The Master of Divinity Program

The master of divinity (M.Div.) is a professional theological degree designed to prepare students for learned and effective ministry in the Roman Catholic Church, either as priests or as professional lay ministers. The studies of Scripture, the history of Christian tradition, systematic theology, liturgy, and Christian ethics are joined to field experience, training in pastoral skills, and vocational formation to form a comprehensive ministerial curriculum. Thus, the M.Div. aims at a comprehensive, holistic integration of the intellectual, pastoral, human and spiritual dimensions.

## The Program of Studies

The program of studies leading to the M.Div. degree encompasses 83 semester credits and normally extends over six semesters. Credit requirements are allocated as follows:

| Biblical studies | 12 credits |
| :--- | ---: |
| Historical studies | 6 credits |
| Systematic theology | 15 credits |
| Christian ethics | 6 credits |
| Canon law | 3 credits |
| Liturgical studies | 6 credits |
| Field education | 10 credits |
| Pastoral studies | 14 credits |
| Elective | 9 credits |
| Synthesis seminar | 2 credits |

## Field Education

Field education serves as an integral component in the theological and pastoral education of ministry students, as well as to their spiritual formation and vocational preparation. It provides those preparing for ministry varied opportunities for acquiring ministerial skills, for integrating their ministerial experiences through theological reflection, and ultimately for developing their ministerial identities. To make these opportunities possible, field education consists of the following:

- weekly service at a ministerial site during each of the three academic years in the M.Div. program;
- regular individual supervision with an experienced mentor at the ministry site;
- weekly seminars utilizing case study method and conversations about contemporary theological and ministerial issues.


## Formation

All M.Div. students participate in a program of human and spiritual formation suited to their particular vocational preparation, either as seminarians or as candidates for lay ministry. With the guidance of spiritual directors and formators, students are mentored in the life of faith, in their personal growth and in their vocational discernment. Regular joint formation events are held bringing all constituencies of the program together around shared issues and themes.

## The Master of Sacred <br> Music Program

The Master of Sacred Music (M.S.M.) is a ministerial leadership program that prepares students for pastoral liturgical music ministry. The program in sacred music is part of a larger initiative for liturgy and sacred arts. The graduate program is administered in the Department of Theology and overseen by an interdepartmental committee (Music/ Theology) and accreditation is granted through the Association of Theological Schools (A.T.S.). Following the principles of the document Sing to the Lord (USCCB, 2008), the program is multidisciplinary, embracing in particular three dimensions: musical, liturgical, and pastoral. The program strives to integrate these three dimensions, grounding the student professionally in liturgical music as a ministry.

The M.S.M. is a 48 -credit-hour degree. Students are required to give two recitals or one recital and a 60 minute oral comprehensive exam (to be administered in the final semester).

## General Course Requirements

| Liturgy | 15 credits |
| :--- | ---: |
| Sacred Music | 15 credits |
| Music Studies/Performance | 16 credits |
| Interdisciplinary Colloquia | 2 credits |
| Applied Music Practices |  |
| (remedial courses offered on a |  |
| non-credit basis) |  |
| Practicum |  |
| (supervised pastoral placement for |  |
| four semesters - transcripted only) |  |

## Master's Colloquium

The master's colloquium is designed both to familiarize M.S.M. students with the methods and content of the disciplines of music and theology and to engage students with faculty members in discussions about sacred music. Each year several colloquia will address issues common to both liturgy and the sacred arts. These colloquia will ground the interdisciplinary ethos of the programs, and draw the faculty and students into on-going dialogue. Attendance is mandatory for all M.S.M. students.

## Practicum

M.S.M. students will benefit from supervised pastoral placement for four semesters in the following places: Basilica of the Sacred Heart, local churches, or residence halls.

## The Doctoral Program

Doctoral studies at Notre Dame provide the opportunity for advanced study in theology through specialization in one of the following areas.

## Areas of Concentration

Christianity and Judaism in antiquity covers four disciplines: the Hebrew Scriptures; Judaism, especially second temple and early rabbinic Judaism; the New Testament and Graeco-Roman world; and other Christian sources to the early medieval period. These are frequently studied in isolation from one another; in CJA they are studied together for their mutually illuminating interrelationships. At the same time, the integrity of each discipline is respected. Judaism is explored in its own right as well as in its relationship to Christianity. Christianity is explored by itself as well as in its dependence upon Judaism and its conscious emerging distinction from Judaism. Both are explored within the larger contexts of the ancient near East and the Greco-Roman world, which are also studied in their own right.
The history of Christianity area covers the rich and diverse history of Christian theology from the patristic period until the nineteenth century. Students specialize in two of the three historical periods that subdivide this area: early, medieval, Reformation and modern. Special strengths of the program in the history of Christianity include the interpretation of scripture prior to the modern period, spirituality, and doctrine and theological method from the early period through the Reformation..

Liturgical studies advances the study and understanding of the worship life of the Christian church in its various traditions. The program is inspired by the conviction that liturgy, in its several and diverse manifestations, is the key to the church's identity, ethos, and orientation toward God and the world. It integrates three subdisciplines: liturgical history, liturgical theology, and ritual studies.

Moral theology/Christian ethics is that branch of theological inquiry that studies in a systematic way the practical implications of God's revelatory intervention in Jesus Christ. It is concerned with the kind of people we ought to be and the kinds of actions we ought to perform or avoid. In pursuing its task, moral theology must draw upon every available source of understanding: scripture, tradition, relevant human sciences (such as psychology, sociology, economics), and human reason. The program
encourages interaction with philosophical ethics. While moral theology at Notre Dame concentrates on the Roman Catholic tradition, it engages and is open to a variety of traditions.

As "faith seeking understanding," systematic theology engages in the disciplined and critical inquiry into the major tenets of Christian faith, especially as understood within Catholicism. The program is designed to provide a broad background in the Christian tradition, with particular emphasis on the Catholic theological heritage. Through course work, focused in-depth study in preparation for candidacy examinations, and dissertation research, students develop the hermeneutical and theological skills required for a critical and creative appropriation of the tradition.

World religions and world Church explores new ways of thinking about the study of world religions, cultural diversity in the Church, and the history of interactions between the Church and the religions of the world. It does so by considering the world's religions with specific attention to their own particular historical contexts and modes of theological discourse, and by studying the ways in which Christianity has become inculturated in contexts shaped largely by non-Christian religious traditions.

## Minor Area of Concentration

The minor concentration in world religions and world Christianity provides the intellectual foundations for engaging the religions of the world from within a Christian theological paradigm, whether as a grounding for more advanced study of their history and theology or for purposes of inter-religious engagement. The minor allows graduate students the opportunity to study the ideas and practices of non-Christian religions as well as the ways in which Christianity has become inculturated in contexts shaped largely by non-Christian religious traditions. Working in conjunction with one of the major areas of doctoral concentration, it involves both coursework and the preparation of topics for candidacy exams.

## Course of Studies

The doctoral program requires 42 credit hours of course work and takes a minimum of four years, more often five years, to complete. In the best interest of the student as well as the program, each student is evaluated at the end of each semester. If there is serious doubt about the student's ability to complete the Ph.D., he or she may be asked to leave the program.

## 1. Residency

Two years of course work in residency are required. A student who enters the program without sufficient background ordinarily will spend one or two further semesters in course work before taking candidacy examinations.

Those students who enter with a master's degree or its equivalent may seek immediate admission to residency.

Major Fields. Within the program areas, students concentrate their course work in a major field. These major fields are defined as follows:

- Christianity and Judaism in antiquity Hebrew Bible and Judaica
New Testament and early church
- History of Christianity

Early Church
Medieval studies
Reformation and modern studies

- Liturgical studies
- Moral theology/Christian ethics
- Systematic theology
- World religions and world Church

Course Requirements. Students are expected to take 14 courses during residency: eight of these must be in the major field of study; three must be outside the major fields; and three are electives.

Language Requirements. Students are required to pass examinations in three languages, Greek or Latin, French, and German. Students in systematic theology may substitute Spanish for French or German. The level of competence required is the ability to read standard theological sources pertinent to the area of study with the aid of a dictionary. Students in the history of Christianity program must know the ancient language at an advanced level. Students in liturgical studies are required to know two ancient and two modern languages, all at the basic level. Students in Christianity and Judaism in antiquity are required to pass examinations in five languages: one ancient at an advanced level, one ancient at an intermediate level, one ancient at a beginning level, and two modern languages. The language requirement should be fulfilled as soon as possible and must be fulfilled by the fall of the third year.

Advising. When a student enters the program, the faculty member who serves as the coordinator for the area of studies will function as a preliminary adviser. During the second semester in residency, each student, after appropriate consultation, selects an adviser in his or her area of research interest.

Evaluations. At the end of each semester the entire graduate faculty of the department evaluates the progress of students. These evaluations are designed to facilitate the progress of students through the program and to identify both strengths and weaknesses. Area coordinators write letters to the students reporting the conclusions of the evaluation. These provide more specific commendations and recommendations than course grades. If there is serious doubt about the student's ability to complete the Ph.D. degree, he or she may be placed on probation, and, if the deficiencies are not removed, asked to leave the program.

## 2. Independent Study

After the period of course work, students spend a period of time, normally nine months, of independent study organized around a series of topics. These topics are meant to expand the students' intellectual breadth and skills and involve matters of inquiry that extend beyond their course work. After consultation with the adviser, the student will propose a series of 10 topics, seven in the major field of study and three outside the major field. At least one of the topics in the major field will deal with the subject on which the student intends to write a dissertation. The program of independent study is approved by a committee and forms the basis for candidacy examinations.

## 3. Candidacy Examinations

Offered in October and March, the examinations are usually taken in the second semester after the two-year residency and completion of the language requirements.

The exams consist of three days of written examinations and a 90 -minute oral examination. Successful completion of the written examinations is required for admission to the oral examination.

## 4. Dissertation Proposal

The dissertation proposal is to be submitted by the beginning of the semester following oral candidacy examinations.

## 5. Dissertation

The completed dissertation must be submitted within eight years of matriculation into the program. After approval by a committee composed of the dissertation adviser and three other readers, the dissertation is defended orally.

## Teaching and Research Faculty

Gary Anderson, Professor
J. Matthew Ashley, Director of Graduate Studies, Associate Professor, and Fellow in the Center for Social Concerns

Ann W. Astell, Professor
David Aune, the Walter Professor of Theology

Rev. Paul F. Bradshaw, Professor
John C. Cavadini, Chair and Associate
Professor of Theology, and Director of the Institute for Church Life

David A. Clairmont, Assistant Professor
Rev. Michael E. Connors, C.S.C., Director of M.Div. Program and Associate Professional Specialist

Lawrence S. Cunningham, the John A.
O'Brien Professor of Theology

Rev. Brian Daley, S.J., the Catherine F. Huisking Professor of Theology
Mary Rose D'Angelo, Associate Professor
Rev. Michael S. Driscoll, Director of M.S.M.
Program and Associate Professor
Rev. John S. Dunne, C.S.C., the John A. O'Brien Professor of Catholic Theology
Rev. Virgilio Elizondo, Notre Dame Professor of Pastoral and Hispanic Theology, Senior
Fellow of the Institute for Latino Studies, and Fellow in the Kellogg Institute for International Studies

David Fagerberg, Associate Professor
Rev. Daniel G. Groody, C.S.C., Assistant Professor

Rev. Gustavo Gutierrez, O.P., John Cardinal O'Hara Professor of Theology

Jennifer Herdt, Associate Professor
M. Catherine Hilkert, O.P., Professor

Maxwell Johnson, Professor
M. Cathleen Kaveny, the John P. Murphy Foundation Professor of Law and Professor of Theology

Rev. Paul Kollman, C.S.C., Assistant Professor

Robert A. Krieg, Professor and Fellow in the Nanovic Institute for European Studies
Blake Leyerle, Associate Professor and Concurrent Associate Professor of Classics

Bradley J. Malkovsky, Associate Professor
Timothy Matovina, Director of the Cushwa Center for the Study of American Catholicism and Professor

Rev. Richard P. McBrien, the CrowleyO'Brien Professor of Theology

Gerald McKenny, Director of the Reilly Center for Science, Technology, and Values, and Associate Professor

John Meier, Professor
Leon J. Mertensotto, C.S.C., Associate Professor

Rev. Paulinus I. Odozor, C.S.Sp., Associate Professor

Cyril O'Regan, the Catherine F. Huisking Professor of Theology

Rev. Hugh Rowland Page Jr., Dean of the First Year of Studies and Associate Professor

Margaret R. Pfeil, Assistant Professor

Mark L. Poorman, C.S.C., Vice President for Student Affairs and Associate Professor of Theology

Jean Porter, the John A. O'Brien Professor of Moral Theology

Gabriel Said Reynolds, Director of M.T.S.
Program and Associate Professor
Maura A. Ryan, Associate Dean of Arts and Letters and Associate Professor of Theology
Gregory E. Sterling, Dean of the Graduate
School and Professor of Theology
Lawrence E. Sullivan, Professor
Eugene C. Ulrich, the Rev. John. A. O'Brien Professor of Old Testament Studies
James C. VanderKam, the John A. O'Brien
Professor of Hebrew Scriptures
Joseph P. Wawrykow, Associate Professor
Todd D. Whitmore, Associate Professor
Robin Darling Young, Associate Professor
Randall C. Zachman, Professor
Matthew C. Zyniewicz, Associate Professional Specialist, Assistant Chair and Director of the M.A. in Theology Program


# The Division of Science 

## Biological Sciences

## Chair:

Gary A. Lamberti<br>Director of Graduate Studies:<br>Sunny K. Boyd

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## The Program of Studies

The master's degree is a 24 -credit-hour program requiring the satisfactory completion of a minimum of 15 credit hours of course work, passing a research proposal review, and completing a suitable master's thesis. A student may include nine of the 24 credit hours in thesis research.

For the degree of doctor of philosophy, the student is expected to complete a 54-credit-hour requirement. This is composed of at least 24 credit hours of course work and the remainder as dissertation research. The student must pass a comprehensive examination consisting of both an oral and a written examination, write and officially have approved a dissertation on research conducted under the direction of an adviser and committee, and pass a defense of the dissertation.

Students in the doctoral degree program must also fulfill a one-year teaching requirement that usually involves assisting in the instruction of undergraduate or graduate laboratory courses. This requirement may be automatically fulfilled if the student has a graduate assistantship for financial aid.

Incoming graduate students may be assigned an interim faculty adviser by the director of graduate studies. These assignments are made with consideration of the specific academic interests of the student. It is the responsibility of the interim adviser to guide the student's program until a research adviser is selected. By the end of the first semester of the second year of residence, the Ph.D. student must have chosen a faculty member as a research adviser
and have begun a research program. The master's student should choose an adviser by the end of the first year of residence. The student, in consultation with his or her adviser, selects an advisory committee. The members of this committee will contribute guidance, expertise, and stimulation to the student in his or her graduate program and will serve as the examining committee for the candidacy examinations and for the final defense.

## Teaching and Research Faculty

Elizabeth Archie, Assistant Professor
Gary E. Belovsky, the Gillen Director of UNDERC and Professor

Harvey A. Bender, Professor
Nora J. Besansky, Professor
Sunny K. Boyd, Assistant Chair, Director of Graduate Studies and Professor

Patricia Champion, Assistant Professor
Frank H. Collins, the George and Winifred Clark Professor of Biological Sciences

Crislyn D'Souza-Schorey, the Walther Cancer Institute Chair and Associate Professor

Giles E. Duffield, Assistant Professor
John G. Duman, the Martin J. Gillen Professor of Biological Sciences
Jeffrey L. Feder, Professor
Michael T. Ferdig, Associate Professor
Malcolm J. Fraser Jr., Professor
Paul R. Grimstad, Assistant Chair and
Associate Professor, Director of Undergraduate Studies
Kristin M. Hager, Assistant Professor
Kasturi Haldar, Julius Nieuwland Chair of Biological Sciences, Professor
Ronald A. Hellenthal, Assistant Chair and Professor

Jessica J. Hellmann, Assistant Professor
Hope Hollocher, Associate Professor

David R. Hyde, Professor and the Rev. H.J. Kenna, C.S.C. Memorial Director of the
Center for Zebrafish Research
Charles F. Kulpa Jr., Professor
Gary A. Lamberti, Chair and Professor
Shaun Lee, Assistant Professor
Lei Li, Associate Professor
David M. Lodge, Professor and Director of the Center for Acquatic Conservation

Mary Ann McDowell, Associate Professor
Jason S. McLachlan, Assistant Professor
Joseph E. O’Tousa, Professor
Michael Pfrender, Associate Professor
Jeanne Romero-Severson, Associate Professor
Zachary T. Schafer, Assistant Professor and Coleman Junior Chair in Cancer Biology
Jeffrey S. Schorey, Associate Professor
Robert A. Schulz, Professor and Notre Dame Chair in Biological Sciences
David W. Severson, Professor and Director of the Eck Institute for Global Health
Jennifer L. Tank, the Galla Associate Professor
Kevin T. Vaughan, Associate Professor
Chemistry and
Biochemistry
Chair:

Kenneth W. Henderson<br>Director of Graduate Studies:

Brian Baker
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http://biochemistry.nd.edu

## CHEMISTRY AND BIOCHEMISTRY \& MATHEMATICS

## The Program of Studies

The graduate programs in chemistry and biochemistry at Notre Dame are directed primarily towards the doctoral degree. Applications are taken from students seeking a Ph.D degree in either chemistry or biochemistry.

The Ph.D. programs are designed to prepare the student for a career in research or collegelevel teaching in chemistry, biochemistry, and related fields. Advanced courses in several areas of chemistry and biochemistry are available (see list below) along with regular seminar and special topics courses. A student normally selects his or her area of research and thesis adviser by the end of the first semester, and students and students usually begin active research during the spring semester of their first year. Admission to candidacy for the doctoral degree occurs after completion of written and oral examinations in the area of specialization.

The department considers teaching an integral part of the education of a graduate student. One year of teaching experience is required of all degree-seeking students, and teaching performance, therefore, is considered as part of the semiannual graduate student evaluations. A minimum of one year of teaching experience is required of all advanced degree-seeking students.

Both the chemistry and biochemistry Ph.D. degrees require a dissertation based upon experimental and/or theoretical research. The department participates in interdisciplinary programs involving the Departments of Biological Sciences, Physics, Chemical and Biomolecular Engineering, Computer Science and Engineering, and Aerospace and Mechanical Engineering, as well as the Indiana University School of Medicine - South Bend..

## Teaching and Research Faculty

Brandon Ashfeld, Assistant Professor
Brian M. Baker, Associate Professor and Director of Graduate Studies

Subhash C. Basu, Professor
Seth N. Brown, Associate Professor
Ian C. Carmichael, Professor and Director of Radiation Laboratory
Francis J. Castellino, Dean Emeritus of Science, the Kleiderer-Pezold Professor of Biochemistry, and Director of the Keck Center for Transgene Research
Patricia L. Clark, Assistant Professor
Steven Corcelli, Assistant Professor
Xavier Creary, the Charles L. Huisking Sr. Professor of Chemistry

Jennifer L. DuBois, Assistant Professor

J. Daniel Gezelter, Associate Professor<br>Holly V. Goodson, Associate Professor<br>Gregory V. Hartland, Professor<br>Paul Helquist, Professor<br>Kenneth W. Henderson, Professor and Chair<br>Paul W. Huber, Professor<br>Amanda Hummon, the Walther Cancer Institute Assistant Professor of Biochemistry<br>Dennis C. Jacobs, Vice President and Associate Provost, and Professor<br>Prashant V. Kamat, Professor<br>S. Alex Kandel, Associate Professor<br>M. Kenneth Kuno, Assistant Professor<br>A. Graham Lappin, Professor<br>Marya Lieberman, Associate Professor<br>Joseph P. Marino, Professor<br>Dan Meisel, Professor<br>Marvin J. Miller, the George and Winifred Clark Professor of Chemistry<br>Shahriar Mobashery, the Navari Family Professor in Life Sciences<br>Thomas L. Nowak, Professor<br>Jeffrey W. Peng, Assistant Professor<br>W. Robert Scheidt, the William K. Warren Professor of Chemistry and Biochemistry<br>Zachary Schultz, Assistant Professor<br>Anthony S. Serianni, Professor<br>Slavi C. Sevov, Professor<br>Bradley D. Smith, Professor<br>Richard E. Taylor, Professor<br>Olaf G. Wiest, Professor

## Mathematics

Chair:<br>Bei Hu<br>Director of Graduate Studies:<br>Julia Knight<br>Telephone: (574) 631-7245<br>Fax: (574) 631-6579<br>Location: 255 Hurley Hall<br>E-mail: math@nd.edu<br>Web: http://www.science.nd.edu/math

## The Program of Studies

The purpose of the doctoral program in mathematics is to assist students in developing into educated, creative, and articulate mathematicians. The program consists of basic courses in the fundamentals of algebra, analysis, geometry and logic, numerical analysis and other areas of applied mathematics, and more advanced topics and seminars; and approximately two to three years of thesis work in close association with a member of the faculty. Limited enrollment and the presence of active groups of strong mathematicians provide excellent opportunities for research in algebra, complex analysis, partial differential equations, logic, algebraic geometry, differential geometry, topology, and applied mathematics. Most students complete the program within five years; some finish in four years.

First-year students have no teaching duties and usually devote themselves full time to courses. The written candidacy examinations are taken by the beginning of the second year. The oral candidacy examination is taken during the second year. A reading knowledge of one approved language, in addition to English, is required. Ideally, the language requirement is completed by the end of the third year. For more details about the requirements, see the Doctoral Regulations on the website.

## Doctoral Degree Requirements

Students must have completed the following in order to receive their doctoral degree. For more information, see the department's Regulations
for Doctoral Students in Mathematics.

1. At least 36 credit hours in basic and topics courses
2. Four consecutive semesters of full-time study
3. An examination to confirm the ability to read technical material in at least one other language in addition to English
4. Admission to degree candidacy
5. The successful defense and submission of a doctoral dissertation.

## The Master of Science Degree

The graduate program in the Mathematics Department is almost entirely a Ph.D. program. Students are not normally admitted directly to a master's program. There is a master of science degree in applied mathematics, for students who do not need funding and wish to pursue an interdisciplinary project, or to carry out serious mathematical work while pursuing a Ph.D. in another department. (The requirements for the MSAM are available through the department.) A student who is working toward a Ph.D. in mathematics may qualify for a master of science degree along the way, if he or she has accumulated 30 credit hours, has passed the written candidacy examination, and has either passed the
oral candidacy examination or (without passing) exhibited sufficient knowledge to obtain a positive recommendation from the examiners.

## Teaching and Research Faculty

Mark S. Alber, Professor
Katrina D. Barron, Assistant Professor
Nero Budur, H.J. Kenna Assistant Professor
Steven A. Buechler, Professor
Jianguo Cao, Professor
Peter Cholak, Professor
Francis X. Connolly, Professor
Jeffrey Diller, Associate Professor
William G. Dwyer, the William J. Hank
Family Professor of Mathematics
Matthew J. Dyer, Associate Professor
Samuel Evens, Associate Professor
Leonid Faybusovich, Professor
David Galvin, Assistant Professor
Michael Gekhtman, Professor
Karsten Grove, the Rev. Howard J. Kenna, C.S.C Profesor

Matthew Gursky, Professor
Alexander J. Hahn, Director of the Kaneb Center for Teaching and Learning and Professor

Brian Hall, Professor
Qing Han, Professor
A. Alexandrou Himonas, Professor

Richard Hind, Associate Professor
Bei Hu, Chair and Professor
Julia F. Knight, Director of Graduate Studies and the Charles L. Huisking Professor of Mathematics

François Ledrappier, the John and Margaret McAndrew Professor of Mathematics

Xiaobo Liu, Professor
Juan C. Migliore, Professor
Gerard K. Misiolek, Associate Professor
Liviu Nicolaescu, Associate Professor
Claudia Polini, Professor
Mei-Chi Shaw, Professor
Brian Smyth, Professor

## Dennis M. Snow, Professor

Andrew J. Sommese, the Vincent J. Duncan and Annamarie Micus Duncan Professor of Mathematics
Nancy K. Stanton, Professor
Sergei Starchenko, Professor
Stephan A. Stolz, the Rev. John A. Zahm, C.S.C., Professor of Mathematics

Laurence R. Taylor, Professor
E. Bruce Williams, Professor

Pit-Mann Wong, Professor
Frederico J. Xavier, Professor
Zhiliang Xu, Assistant Professor
Yongtao Zhang, Assistant Professor

## M.D./Ph.D. Joint Degree Program

## Director:

Rudolph M. Navari
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## The Program of Studies

The University of Notre Dame and the Indiana University School of Medicine South Bend (IUSM SB) offer a joint M.D./Ph.D. degree for exceptional students interested in academic medicine. This unusual partnership between a private Catholic university and a state-supported medical school was formed in 1995. The program draws on the strengths of the medical faculty and the research excellence of the graduate program faculty to train scientists who can bridge the gap between clinical medicine and basic life sciences.

## General Requirements

To earn the joint degree, students will complete the first two years of medical school at IUSM - SB, and continue at Notre Dame for three more years to pursue the University's doctoral degree through the Graduate School. The last two years of medical school then will be completed at the Indiana University School of Medicine's South Bend campus or any other School of Medicine campus throughout the state which offeres the 3rd and 4th year..

Program descriptions and requirements for all of Notre Dame's doctoral programs, may be found elsewhere in this Bulletin. Students in the M.D./Ph.D. program may pursue the doctoral degree in any of these disciplines.

## Admission

Admission to the program requires separate applications to the Notre Dame Graduate School and the IUSM SB. The Graduate School will accept MCAT scores in place of the GRE scores required of all applicants. The parallel applications are coordinated and tracked by the IUSM SB which serves as the central office for the combined degree program. Representatives from Notre Dame and the I.U. School of Medicine monitor and oversee the program.

Application to the joint degree program will not jeopardize a student's application to either the Graduate School or the School of Medicine. The student may be admitted to either school independently. Students admitted into the joint degree program will receive both tuition and stipend assistance.

## Teaching and Research Faculty

Suzanne Bohlson, Assistant Professor
Edward E. McKee, Associate Professor
Rudolph M. Navari, Professor
Kenneth R. Olson, Professor
Molly Duman Scheel, Assistant Professor
Robert V. Stahelin, Assistant Professor
Tracy Vargo-Gogola, Assistant Professor

## The Molecular Biosciences Program <br> Director: <br> Paul W. Huber, Professor of Chemistry and Biochemistry

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Current research probing the molecular details of the biological sciences requires simultaneous application of genetic, biochemical, and molecular biological principles and expertise. The Molecular Biosciences Program (M.B.P.) provides a broad range of training opportunities for students seeking careers within this active research field. Faculty participants of the Department of Biological Sciences and the Department of Chemistry and Biochemistry administer the M.B.P. within the College of Science. Students interested in the M.B. program should apply for admission to the

## MOLECULAR BIOSCIENCES PROGRAM $\leadsto$ PHYSICS

Department of Biological Sciences or Chemistry and Biochemistry depending on their research interests.

## Degree Requirements

Students participating in the Molecular Biosciences Program must complete the degree requirements of either the Department of Biological Sciences or the Department of Chemistry and Biochemistry. Several courses are designed for all M.B.P. students, and are usually taken during the first year of graduate school. There are additional elective courses in each department to allow for specialization within the M.B.P. Students in the Biological Sciences are required to take Molecular Biology I and II, Fundamentals of Biochemistry, and five elective courses. These are minimum requirements. The student's research adviser and committee may require additional courses based on the background and research interests of the student. In the Department of Chemistry and Biochemistry there are specific requirements depending on the focus of the study. A student in Biochemistry is required to take Fundamentals of Biochemistry, Intermediary Metabolism, Molecular Biology I, and Advanced Biochemical Techniques. In Organic Chemistry, a student is required to take Advanced Organic Chemistry I, Advanced Organic Chemistry II, and Synthetic Organic Chemistry, with an additional nine credit hours of courses.

All M.B.P. students must pass both oral and written comprehensive examinations. Students will conduct original research and write an approved dissertation on this work. The work is conducted under the direction of an adviser participating in the M.B.P. Students in the program also must complete a one-year teaching requirement that usually involves assisting in the instruction of laboratory courses within their discipline. All students participate in the seminar activities of the program.

## Course List

Both required and elective courses of the Molecular Biosciences Program are categorized according to the department offering the course.

## Biological Sciences

Developmental Genetics
Immunology
Molecular Biology I and II
Advanced Cell Biology I and II
Immunobiology of Infectious Diseases
Topics in Tumor Biology

## Chemistry and Biochemistry

Fundamentals of Biochemistry
Intermediary Metabolism
Molecular Biology I and II
Enzyme Chemistry

NMR Spectroscopy in Chemistry and Biochemistry
Chemical Basis of Gene Expression Advanced Organic Chemistry I and II Synthetic Organic Chemistry

## Physics

Chair:
Mitchell Wayne
Director of Graduate Studies:
Kathie E. Newman

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## The Program of Studies

The graduate physics program at Notre Dame offers students a broad range of choice of research areas for a Ph.D. degree. Almost all areas of study in physics are represented within the department, including astrophysics, biophysics, atomic, condensed-matter, highenergy, nuclear, and statistical physics. This program combines course work and research, preparing the student for a career in research at a university, industry, or government lab or in teaching. Students take a sequence of basic courses in the fundamental areas of physics. In addition, the student will take advanced courses and seminars in specialized areas. Students join in a physics research program of the department within the first year.

The graduate program is primarily a doctoral program, leading to the degree of doctor of philosophy. The department ordinarily will not accept students who intend to complete only the master's degree. However, a program leading to the degree of master of science is available; it involves satisfactory completion of graduate course work without any thesis requirement.

The master of science nonresearch program requires 30 credit hours of approved course work and the passing of an oral master's examination. Each program of course work is chosen in consultation with a faculty adviser.

Interdisciplinary programs between physics and chemistry or biology are also available.

Requirements for the Ph.D. include 36 credit hours in courses and research. Courses taken include Mathematical Methods in Physics (PHYS 70003), Classical Mechanics (PHYS 70005), Methods of Experimental Physics (PHYS 71010), Quantum Mechanics I and II
(PHYS 70007and 70008), Electromagnetism and Electrodynamics (PHYS 70006 and 80001), and Statistical Thermodynamics (PHYS 80002). Three physics electives are required, generally chosen from the set of astrophysics, atomic physics, condensed matter physics, elementary particle physics, and nuclear physics (PHYS 70201, 80301, 80501, 80601, and 80701, respectively). There is no foreign language requirement for a Ph.D. in physics. Students who have satisfactorily completed courses equivalent to the required courses listed above will have the corresponding requirements waived or transferred. Students lacking the background to begin the basic curriculum may be advised to take some advanced undergraduate courses. Additional courses, supplemented by colloquia and informal seminars on topics of current interest, are available to the advanced student.

In addition to course work, there are three examinations to be passed for a Ph.D., a written qualifying examination on undergraduate physics, a written and oral Ph.D. candidacy examination, and an oral Ph.D. dissertation defense. Students first take the qualifying exam in the fall of their first year, and must pass it by the end of the second year. The candidacy examination is typically taken in the third year, after course work is complete. In this exam, the candidate must present a research proposal, demonstrate the ability to perform the proposed research, and show a broad understanding of physics. The post-candidacy student then concentrates on research, and generally writes the doctoral dissertation within three years of the candidacy examination. A dissertation is required and must be approved by the student's doctoral committee and defended orally by the student at the final examination, the Ph.D. defense.

To remain in good standing, students are required to maintain a 3.0 grade point average, to pass the qualifying examination by the end of the second year, to pass the candidacy exam by the end of the fourth year, and to complete the Ph.D. degree program by the end of the eighth year. The minimum residence requirement for the Ph.D. degree is four consecutive semesters and may include summer session.

## Teaching and Research Faculty

Mark Alber, Concurrent Professor
Ani Aprahamian, Professor
Gerald B. Arnold, Professor
Dinshaw Balsara, Associate Professor
H. Gordon Berry, Professor

Ikaros I. Bigi, the Grace-Rupley II Professor of Physics

Howard A. Blackstead, Professor
Bruce A. Bunker, Professor
Mark A. Caprio, Assistant Professor

Philippe A. Collon, Associate Professor
Gregory P. Crawford, Professor and Dean of the College of Science

Antonio Delgado, Assistant Professor
Malgorzata Dobrowolska-Furdyna, Professor
Morten R. Eskildsen, Associate Professor
Stefan G. Frauendorf, Professor
Jacek K. Furdyna, the Aurora and Tom Marquez Professor of Physics and Fellow of the Nanovic Institute for European Studies
Umesh Garg, Professor
Peter M. Garnavich, Professor
Michael D. Hildreth, Associate Professor
Jay Christopher Howk, Assistant Professor
Anthony K. Hyder, Professor and Associate Chair and Director of Undergraduate Studies

Boldizsár Jankó, Professor and Director of the Institute for Theoretical Sciences

Colin Philip Jessop, Associate Professor
James J. Kolata, Professor
Christopher F. Kolda, Associate Professor
Kevin A. Lannon, Assistant Professor
A. Eugene Livingston, Professor

John M. LoSecco, Professor
Grant J. Mathews, Professor and Director of the Center for Astrophysics

Kathie E. Newman, Professor, Associate Chair and Director of Graduate Studies

Terrence W. Rettig, Professor
Randal C. Ruchti, Professor and Associate Vice President for Research

Steven T. Ruggiero, Professor
Jonathan R. Sapirstein, Professor
Xiao-Dong Tang, Assistant Professor
Carol E. Tanner, Professor
Zoltán Toroczkai, Associate Professor and Director of the Center for Complex Network Research

Mitchell R. Wayne, Chair and Professor
Michael C. F. Wiescher, the Frank M. Freimann Professor of Physics, Director of the Joint Institute for Nuclear Astrophysics, and Director of the Institute for Structure and Nuclear Astrophysics

# The Division of Social Sciences 

## Economics and Econometrics

## Chair:

Richard A. Jensen
Director of Graduate Studies:
Nelson C. Mark

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## Doctoral Course of Study

The graduate program in economics at the University of Notre Dame is a Ph.D. program designed to prepare successful graduates for careers as professional economists at academic institutions, government agencies, non-government organizations, international agencies, and the private sector. Our faculty are involved in leading developments in research, teaching and governmental economic policies. We provide the next generation of scholars with the rigorous analytical and quantitative training necessary to continue this tradition.

The expected time to completion of the Ph.D. is five years.

## Satisfactory Course Performance

Satisfactory performance requires a grade of B- or better in each and every graduate course with a cumulative GPA of at least 3.0 (corresponding to the grade B). Less than satisfactory course performance may result in dismissal from the program at the discretion of the Graduate Studies Committee.

## Credit Hours

Students must complete a minimum of 45 credit hours ( 15 courses) of approved course work at the graduate level.

All students are encouraged to attend a research seminar offered by the department. Students in their 4th semester and beyond are
required to attend.

## Math Camp

Economics is a quantitative social science that leans heavily on certain branches of mathematics. Since it may have been some time since entering students have had their college math courses, the department offers a one-week intensive course to review college-level math relevant to economics, and to introduce new concepts as time permits.

## The First Year

During the first year of study, students acquire a thorough knowledge of microeconomic theory, macroeconomic theory, econometrics, and quantitative methods. The required courses are referred to as the "core." Except for Econometrics II, which is taken in the fall of the student's second year, all of the core classes are completed in the first year.

Students who are well-prepared in mathematics or statistics may satisfy some of the core course requirements as determined by the Di rector of Graduate Studies in consultation with the Graduate Studies Committee.

After the spring semester, students take the comprehensive written exams in microeconomic and macroeconomic theory. These are competency evaluations that assesses the student's command of the essential concepts and methods that are necessary to read the literature and to perform research at the disciplinary frontier. Possible outcomes of the comprehensive exams are (a) Ph.D. pass, (b) M.A. pass, (c) fail. Students who do not attain a Ph.D. pass in either examination have one opportunity for a retake later that summer, typically in August. Failure to pass both exams at the Ph.D. level results in dismissal from the program.

The core courses for the first year are:

## Fall Semester

ECOE 60001: Mathematics for

## Economists I

ECOE 60101: Microeconomic Theory I ECOE 60201: Macroeconomic Theory I

ECOE 60301: Probability and Statistics

## Spring Semester

ECOE 60002: Mathematics for
Economists II
ECOE 60102: Microeconomic Theory II
ECOE 60202: Macroeconomic Theory II
ECOE 60302: Econometrics I

## Summer

Sit for comprehensive exams

## The Second Year

During the second year, students take the remaining required course, Econometrics II, and acquire specialized knowledge by taking two courses in each of two specialized fields of study. This satisfies the field requirement, in which the Ph.D. candidate successfully completes two specialized fields, each comprised of a two-course sequence in a specialized area. The student's competency in a field area is determined by receiving satisfactory grades in those courses.

The program allows some flexibility in forming specialty fields, subject to approval by the Director of Graduate Studies in consultation with the Graduate Studies Committee. Field offerings vary from year to year depending on faculty in residence and student interest but most are expected to be offered at least once every other year. The current set of fields includes:

- International Economics
- Monetary and Macroeconomics
- Industrial Organization
- Public Economics
- Environmental Economics
- Labor Economics
- Political Economy
- History of Economic Thought

Students spend the second year developing an original research topic under the supervision of faculty in the chosen field of study. Written field exams are replaced by a second-year research paper which the student must present for approval by the faculty early in the third year. The research paper must demonstrate an ability to conduct independent research and may become one of the chapters of the student's dissertation. From the fourth semester on (spring semester of the second year), the student will be required to participate in a research seminar in his or her chosen fields. Participation means presenting updates of the student's own research and criti-
cally analyzing that of others.
The curriculum for the second year is:

## Fall Semester

First field course I
Second field course I
ECOE 60303: Econometrics II

## Spring Semester

First field course II
Second field course II
Research seminar

## Summer

Complete the second-year paper

## The Third Year

In the third year, the student finishes course work by taking any additional field courses along his or her interests. The student is also expected to present the second-year research paper, and to devote increasing time and energy toward dissertation research.

## Fall Semester

Remaining field course I (optional)
Research seminar

## Spring Semester

Remaining field course II (optional)
Research seminar

## The Fourth Year

In the fourth year, students devote themselves entirely to dissertation research and to participation in research seminars. The student must pass a candidacy exam before the end of the fourth year. By that time, the student should have completed two research papers that are ready for presentation at other universities, research institutions, or professional conferences.

## The Fifth Year

During the fifth year, the student will complete dissertation research, defend the dissertation, and initiate post-dissertation research.

## Seminar Requirements

Research seminars provide the student with insights into current research topics and offer a forum for students and faculty to present and discuss their recent research. Seminar and workshop attendance is optional, but strongly encouraged in the first and second years. By the third year and beyond, the student will be required to register for a research seminar, and to present at least one research paper in a workshop by the end of the fourth year.

## The Dissertation Proposal

Starting in the third year, the student will be expected to engage in a significant, original research project. Optimally, this would fol-
low from the second-year research paper. All students are required to have a faculty adviser in their major field of study by the end of their third year. The role of the faculty adviser is to help the student make the transition from coursework to research and to help identify suitable dissertation topics. Often the faculty advisor also serves as the major adviser for the dissertation.

## Candidacy Exam

The student must be admitted to candidacy by the end of the fourth year by passing a candidacy exam. The candidacy examination consists of a written component and an oral component. The written part normally precedes the oral part and is satisfied by either a written dissertation proposal or a paper that will become a chapter of the dissertation. The oral part of the examination is conducted as soon as feasible after passage of the written part, according to the rules of the Graduate School. It can be taken no later than one calendar year prior to defense of the dissertation. The oral part is comprehensive and is intended to test the student's readiness for advanced research in the more specialized area(s) of his or her field, as well as the feasibility of the specific research proposed for the dissertation. Successful passage indicates that, in the judgment of the faculty, the student has an adequate knowledge of the basic literature, problems, and research methods in the chosen field.

## The Dissertation

The dissertation must contain original research of sufficient quality to be published in wellrespected peer-reviewed general interest or field journals. It is typically supervised by one major adviser, and it must be orally defended before a committee of the adviser and three reading committee members of the faculty. Usually, students consult with several members of the department during the dissertation stage and are required to present one research paper from their dissertation in a workshop.

## Additional Notes and Requirements

The Director of Graduate Studies serves as faculty adviser for all students until they have chosen an adviser in their major field of study. The matching of student to adviser should be undertaken during the second year.

There is no general foreign language requirement for graduate students in economics.

In addition to the general requirements of the Graduate School, students must meet various departmental requirements. These requirements are continually under review and are subject to revision.

## The Master of Arts Degree

The Department of Economics and Econometrics does not administer a stand-alone M.A. program, but allows students to apply for an M.A. should they choose to terminate their study in the Ph.D. program. This degree is typically awarded to those who successfully complete the required course work in the core for the first year of the Ph.D. program and meet the University requirements for the M.A.

Specifically, a student must have a total of 24 credit hours of course work (as outlined above in The First Year), successfully pass the comprehensive examinations in Microeconomics and Macroeconomics at the master's level, and maintain a cumulative GPA of at least 3.0.

## Teaching and Research Faculty

Simeon Alder, Assistant Professor
David M. Betson, Associate Professor
Frank J. Bonello, Associate Professor
Kasey Buckles, Assistant Professor
Kirk B. Doran, Assistant Professor
Amitava K. Dutt, Professor
William N. Evans, the Keough-Hesburgh Professor of Economics

Robert Flood, Professor
Thomas A. Gresik, Professor
Daniel M. Hungerman, Assistant Professor
Richard A. Jensen, Chair and Professor
Kwan Suk Kim, Professor
Steven Lugauer, Assisitant Professor
William H. Leahy, Professor
Byung-Joo Lee, Associate Professor
Molly Lipscomb, Assistant Professor
Nelson C. Mark, the DeCrane Professor of International Economics and Fellow in the Helen Kellogg Institute for International Studies
Philip E. Mirowski, the Carl E. Koch Professor of Economics
Michael J. Pries, Associate Professor
James J. Rakowski, Associate Professor
Kali P. Rath, Director of Graduate Studies and Associate Professor

Jaime Ros, Professor
David F. Ruccio, Professor

Eric Sims, Assistant Professor
James X. Sullivan, Assistant Professor
Christopher J. Waller, the Gilbert Schaefer
Chair of Economics
Jennifer L. Warlick, Associate Professor
Martin H. Wolfson, Associate Professor
Abigail Wozniak, Assistant Professor

## Education

Director of the M.A. Program:
Rev. Ronald J. Nuzzi
Director of the M.Ed. Program:
Thomas L. Doyle
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## The Program of Studies: M.A.

The master of arts (M.A.) program in educational administration is housed in the Institute for Educational Initiatives, which provides research leadership in education and fosters efforts in education that are informed by social science research. This degree program prepares, educates, and supports selected Catholic school teachers to continue their service to K-12 schools through administrative formation in the Mary Ann Remick Leadership Program in the Alliance for Catholic Education (ACE). All program participants experience a graduate program culminating in a master's degree in educational administration, administrative licensure, as well as regular opportunities to interact with a national community of scholars in Catholic education.

The Mary Ann Remick Leadership Program is designed to prepare participants for service as school principals and to meet the professional standards for the principalship as defined by the Interstate School Leaders Licensure Consortium (ISSLC) and the Indiana Professional Standards Board (IPSB). The program
is, therefore, standards-based, and all course activities and requirements are designed with this in mind. Between the second and third summers, participants are required to sit for and pass the School Leaders Licensure Assessment (SLLA).

A total of 42-credit hours of course work over a 26 -month span are required, with an overall grade point of at least 3.0. Students complete course work over three summers (with 8 to 11 credits each summer) and through two school years ( 6 credits each year). An interdisciplinary faculty composed of the Program Director, one full-time ACE Leadership faculty member, ACE faculty, and select national faculty serves the program. All faculty members possess earned terminal degrees (Ph.D., Ed.D., J.D., S.T.D.), or extensive experience and expertise demonstrated by national prominence.

The first summer includes 11 credits of study in the social and managerial sciences as well as education research, taught by Notre Dame faculty. After completion of the first summer, each Leadership member travels to the K-12 school at which he/she has been accepted as an administrative Intern and serves as a full-time teacher-administrator during the regular school year. During this academic year, all ACE participants come together for a programmatic mid-year meeting, partially dedicated to reflection on the challenges of administrative formation. In addition, all students will participate in distance learning courses directed at the areas of curricular instruction and professional supervision. At the conclusion of the first academic year, participants return to Notre Dame for the second summer of coursework, including educational law, research methods, exceptionalities, and media relations. After completion of the second summer, participants enroll in six-credit hours of distance learning coursework in action research at their sponsoring school. The third and final summer on campus includes coursework in facilities management, grant writing, foundations of education, and board management. Emphasis is placed on the completion of the program portfolio, which documents their growth in the program as a K-12 administrator. Throughout the two years, faculty and program directors provide on-line support and occasional site visits.

The Mary Ann Remick Leadership Program embraces a vision of community centered on the Gospels and manifested in the active promotion of leadership behaviors that support the common good in a variety of social contexts: home, school, nation, and Church. In addition to the credit-hour and GPA requirements, students learn spiritual strategies that empower them to establish, nurture, and maintain a lived experience of community life with the school and the greater community. Participants are encouraged to develop their own personal spirituality and faith in the context of community, and to share with one
another in the journey of becoming committed Catholic school principals. Participants will partake faithfully and regularly in the liturgical life of the Church during the summer session at Notre Dame and during the academic year. Each participant formulates a faith development plan to provide a focus for the internship and to create a context in which to examine their own spiritual growth.

During the summer sessions, students live in community in Notre Dame residence halls, participating in presentations and programs aimed at stimulating their academic understanding of education, especially as it relates to community and spiritual development.

## Course Sequence

## 1. First Summer (11 credits)

70603. Educational Administration
70604. Technology Integration in Modern Schools
70605. Financial Management for Schools
70606. Human Resource Management for Schools
70607. Leadership in Schools I

Elective: 60830: Folk Choir
2. First Academic Year (6 credits)
75610. Fall Administrative Internship Curriculum and Instruction
75612. Spring Administrative Internship - Supervision of Staff
3. Second Summer (10 credits)
73609. Educational Law
73659. Exceptionalities in Education
73777. Educational Research and Methodology
75627. Leadership in Schools II
73633. Media Relations

Elective: 60830: Folk Choir
4. Second Academic Year (6 credits)
73886. Action Research in Schools I
73887. Action Research in Schools II
5. Third Summer ( 9 credits)
73635. History and Philosophy of Education
73607. Grant Writing and Development
73608. Board Management
73634. Facilities Management
73633. Media Relations
73627. Leadership In Schools III

Elective: 60830: Folk Choir

## The Program of Studies: M.Ed.

The master of education (M.Ed.) program is housed in the Institute for Educational Initiatives, which provides research leadership in education and fosters efforts in education that are informed by social science research. The only clients for this master's program are students enrolled in the Alliance for Catholic Education.

Students in this program work toward licensure, consistent with the standards in the state of Indiana, in each of the following areas: middle childhood (i.e., elementary education), early adolescence (middle school), adolescence and young adulthood (high school), English language arts, social studies, science, mathematics, and foreign languages. Like most teacher accreditation programs at the master's level, content-area courses must be completed before entering the master's program, which provides education course work only.

A total of 37 (41 for elementary) credit hours of course work and teaching experience are required, with an overall grade point of at least 3.0. Half of the course work will occur in two summer sessions, with 10 to 12 credits earned in each. The faculty who teach in the M.Ed. program are drawn from a variety of disciplines and colleges within and, in some cases, from outside the University.

The first summer includes practice teaching in South Bend-area elementary and secondary schools as well as nine or 10 credit hours of course work. During each semester of the first school year, students take three credits of supervised teaching experience at an assigned Catholic school in the southern United States and during the second semester, students take two credits of a distance learning seminar. In the second summer, students again take 10 or 11 credit hours of course work. During the second school year, students each semester once again participate in a three-credit supervised teaching experience in their assigned school and in a one-credit distance learning seminar that focuses on state standards and assessment methods. Throughout the two years, supervision is accomplished by measuring students against professional performance indicators while students build a teaching portfolio documenting their progress in developing as a teacher.

In addition to the credit-hour and GPA requirements, students must complete two years of service in teaching with supervised teaching grades of not less than 3.0. The teaching portfolio is evaluated by both University faculty and master teachers, who provide recommendations for continued development.

During the summer sessions, students live in community in Notre Dame residence halls, participating in presentations and programs aimed at stimulating their academic understanding of education, especially as it relates to community and spiritual development.

## Course Sequence

All ACE M.Ed. students are placed in one of three developmental level curricular tracks: elementary, middle school, or high school, depending on their ACE placement. Those in the middle school and high school tracks are then placed in a content area: mathematics, science,
social studies, English/language arts, or foreign language. The particular methods and content courses will depend on the developmental level track.

Additional course numbers are available for the Introduction to Teaching and the Practicum classes.

1. First Summer (11/13 credits)

All tracks:
60022. Introduction to Teaching (Elementary, Middle, High School)
65032. Practicum (Elementary, Middle, High School)
60040. Introduction to Computers in Education
60060. Teaching in Catholic Schools or 60070 Teaching Religion in Catholic Schools
63500. Integrative Seminar

Elementary: 60182. Teaching of Reading
60132. Mathematics in Elementary Education I
60102 Effective Elementary Classroom Teaching.
Middle school:
60204. Introduction to Middle School Teaching
60605, 60625, 60645, 60665, 60685.
Seminar in Content Area I.
High school:
60256. Introduction to High School Teaching
60605, 60625, 60645, 60665, 60685.
Seminar in Content Area I.
Elective:
60830 Folk Choir
2. First School Year: all tracks (8 credits)
65950. Supervised Teaching (two semesters)
65930. Clinical Seminar (one semester)
60410. Topics in Educational Psychology (second semester)
3. Second Summer (10/12 credits)

Elementary:
60312. Exceptionality in Childhood
60452. Child Development and Moral Education
60142. Language Arts in Elementary Education
60162. Content Methods for Elementary Education
63500. Integrative Seminar

Middle school:
60324. Exceptionality in Early Adolescence
60455. Development and Moral Education in Adolescence
60705, 60725, 60745, 60765, 60785. Seminar in Content Area II
63500. Integrative Seminar

High school:
60336. Exceptionality in Adolescence
60455. Development and Moral Education in Adolescence

60705, 60725, 60745, 60765, 60785. Seminar in Content Area II
63500. Integrative Seminar
60840. Teaching Art across the Curriculum
60860. Contemporary Educational Technology (or 60880. Coaching and Youth)
4. Second School Year: all tracks (8 credits)
65950. Supervised Teaching (two semesters)
65930. Clinical Seminar (two semesters)

## Peace Studies

Director of Doctoral Studies:
Robert C. Johansen
Director of Academic Programs:
Jaleh Dashti-Gibson
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## The Program of Studies

## Master's Degree Requirements

The interdisciplinary master's degree program in peace studies is a rigorous academic program offered through the Joan B. Kroc Institute for International Peace Studies. All students enroll in a series of core (required) and elective courses, select a program theme, engage in a six-month field experience, participate in the Master's Colloquium on Effective Peacebuilding, and produce a substantive master's project.

The five academic specialization themes available to students are:

- Global politics and international norms
- Religion, conflict and peace
- Political economy of war, peace and sustainable development
- Culture, war and peace
- Conflict analysis and transformation

The director of academic programs assigns the student to a faculty member who serves as a research adviser and mentor as the student progresses through the program. The director of academic programs serves as co-adviser for all students, and other Kroc faculty and staff are available for guidance on specific issues.

## The Field Experience

A key component of the Kroc M.A. program is the five-month field experience in which students integrate theories of peacebuilding with work in non-governmental organizations and other institutions concerned with conflict

## PEACE STUDIES

resolution, peace studies, economic development, human rights or justice. This is an opportunity for students to acquire comparative experience outside their home country. Only students who are unable to leave the United States because of visa or travel restrictions beyond their control are allowed to complete their field experience in the United States. Students work towards their master's project, bringing data and a fresh perspective back to the Institute when they return to campus for the final semester.

## Master's Colloquium and Project

All students enroll in the Master's Colloquium on Effective Peacebuilding after returning from the field in their final semester. This is an intensive course worth six credits. Conducted as a seminar, the colloquium provides the opportunity to reflect on the field experience in light of peace studies theory. Students work on their culminating master's projects as part of the colloquium.

## Requirements for Graduation

- Forty-two (42) total credit hours, including:
- Four core courses (12 credit hours)
- A minimum of six elective classes from the peace studies curriculum, including two within the student's thematic area of study ( 18 credit hours)
- A six-month field experience ( 6 credit hours)
- Master's Colloquium: Effective Peacebuilding, including production of a master's project (6 credit hours)
- Demonstrated proficiency in English plus one other language
- A minimum grade point average of 3.0 on a 4.0 scale (a " $B$ " average)
- Continuous enrollment in the Graduate School of the University of Notre Dame for the duration of the two-year program


## Doctoral Degree Requirements

The Kroc Institute for International Peace Studies at the University of Notre Dame offers a Ph.D. in peace studies in partnership with Notre Dame's departments of history, political science, psychology, and sociology. This program grows out of an acute awareness of the need for more rigorous interdisciplinary study of peace and war and for deeper understanding of how peacebuilding can effectively address political, ethnic, and religious violence throughout the world. Graduates of the Kroc Institute peace studies program will be fully credentialed in one of the four associated disciplines, plus be fully acquainted with the research questions and findings of interdisciplinary peace research.

## Ph.D. in History and Peace Studies

The requirements for the Ph.D. in History and Peace Studies include: a minimum of 27 hours of graded credit plus 3 hours of ungraded
credit in history and 24 graded hours in peace studies; proficiency in English and 1 or 2 other languages (depending on the specialty within history); two history research seminar papers; a master's paper of publishable quality (not necessarily an official master's thesis); comprehensive exams in five areas; and a dissertation of original research. Some courses not listed above might be substituted in a particular student's program, depending on the student's professional goals and the availability of courses, subject always to the approval of the Directors of Graduate Studies in both the department and the Institute.

Two faculty members would serve on the dissertation committee from the department and two from the Institute. The principal adviser will normally be a Kroc fellow. In most cases there will be additional crossover as students will often choose to work with history professors who are also Kroc fellows.

Students will take five comprehensive exams, three in history and two in peace studies; alternately, one of the five exam fields may be a crossover field involving both disciplines and directed by a history professor who is a Kroc fellow. Of the primary history fields, two must be in the student's major area (United States, modern Europe, Latin America, or medieval), and the third will be created by the student in consultation with and approval of the two directors of graduate studies. At least one of the two peace studies fields will be based on one of the peace studies foundational courses. An example would be a student concentrating in U.S. history taking fields in U.S. history $1865-$ present; African American history; modern Latin America; religion, violence, and peacebuilding; and comparative ethnic conflicts.

## Ph.D. in Political Science and Peace Studies

 In this program, basic requirements include a minimum of 69 hours of credit for the Ph.D. degree ( 57 of which are in substantive courses), proficiency in English and one other language, a master's paper of publishable quality (although this would not necessarily be an official master's thesis), a comprehensive examination in two areas plus a third area of course work, and a dissertation of original research. Students complete all existing regular political science requirements, take peace studies courses as the third area of specialization, plus three additional peace studies courses. Some courses not listed above might be substituted in a particular student's program, depending on the student's professional goals and the availability of courses, subject always to the approval of the Directors of Graduate Studies in both the department and the Institute. Two faculty members would serve on the dissertation committee from the department and two from the Institute. The dozen members of the Political Science Department who are fellows of the Kroc Institute provide numerous opportunities for stimulating research of mutual interest.
## Ph.D. in Psychology and Peace Studies

In this program, basic requirements normally include: a minimum of 72 hours of credit in psychology and peace studies courses for the Ph.D. degree, proficiency in English and one other language, an empirical master's thesis, a comprehensive examination in developmental psychology (or other mutually agreed upon field in the department), and a dissertation of original research. Some courses not listed above might be substituted in a particular student's program, depending on the student's professional goals and the availability of courses, subject always to the approval of the Directors of Graduate Studies in both the department and the Institute. Two faculty members would serve on the dissertation committee from the Department and two from the Institute.

## Ph.D. in Sociology and Peace Studies

In this program, the basic requirements from the sociology core curriculum include: Classical Sociological Theory, Sociological Research Methods, Advanced Social Statistics, and Proseminar. There are also four sociology electives (one must be advanced methods, one must be advanced theory, and one must be global sociology). In addition, students take four peace studies gateway courses: Global Politics of Peacebuilding, Culture and Religion in Peacebuilding, Conflict Transformation and Strategic Peacebuilding, Political Economy of Globalization. Peace Research Seminar includes the Master's paper. In addition, students are required to take Peace Research: Methods and Findings, Ethnic Conflict and Peace Processes, and two Peace Studies electives. Twelve additional hours may be earned in independent study, dissertation credit, and other courses.

In meeting these requirements students will earn a minimum of 65 hours of credit for the Ph.D. degree, demonstrate proficiency in English and one other language, write a master's paper of publishable quality, pass comprehensive examinations in two specialty areas (one of which must be a substantive area in sociolo-gy-which does not include the methods and statistics area or the theory area), and write a dissertation of original research. Some courses not listed above might be substituted in a particular student's program, depending on the student's professional goals and the availability of courses, subject always to the approval of the Directors of Graduate Studies in both the department and the Institute. Two faculty members would serve on the dissertation committee from the department and two from the Institute. Any course that is cross-listed with sociology can be counted as a sociology course. Courses that are cross-listed as sociology and IIPS courses can be counted toward sociology requirements or peace studies requirements, but none can be double counted toward two requirements. Students will indicate how they wish to use such courses by signing up under either the IIPS designation or the SOC designation.

The M.A. degree is normally earned on the way to the Ph.D. The M.A. in the combined degree would come from Classical Sociological Theory, Sociological Research Methods, Advanced Social Statistics, Proseminar, at least 3 of the peace studies gateway courses, plus Peace Research: Methods and Findings, Peace Research Seminar, and the Master's paper. There will be a formal oral defense of the Master's thesis before it is completed and deposited. The examining committee will include three faculty members, with at least one member coming from the department and one from the Institute.

The committees examining doctoral students in comprehensive examinations should have at least one departmental member and one Institute faculty. Any tenured or tenure-track faculty in the Department of Sociology may represent the department in the examining and defense committees. For these committees the Kroc Institute may draw faculty from its joint appointees from other departments or, where appropriate, from special professional faculty if they are part of the Kroc faculty and if a substantial and regular part of their job description is teaching and research.

## Core Faculty

Scott Appleby, John M. Regan Jr. Director; Professor of History
Joseph Bock, Director of External Relations
Catherine Bolten, Assistant Professor of Anthropology and Peace Studies
David Cortright, Director of Policy Studies
Hal Culbertson, Executive Director
John Darby, Professor of Comparative Ethnic Studies

Jaleh Dashti-Gibson, Director of Academic Programs
Christian Davenport, Professor of Peace Studies, Political Science, and Socioloty
Larissa Fast, Assistant Professor of Conflict Resolution

Robert C. Johansen, Director of Doctoral Studies, Senior Fellow, and Professor of Political Science
Asher Kaufman, Assistant Professor of History and Peace Studies

John Paul Lederach, Professor of International Peacebuilding

George A. Lopez, Rev. Theodore M. Hesburgh, C.S.C., Professor of Peace Studies

Erik Melander, Senior Research Fellow
Mary Ellen O'Connell, Research Professor of International Dispute Resolution

A. Rashied Omar, Research Scholar of Islamic Studies and Peacebuilding<br>Atalia Omer, Assistant Professor of Religion, Conflict, and Peace Studies<br>Daniel Philpott, Associate Professor of Political Science<br>Gerard F. Powers, Director of Catholic Peacebuilding Studies<br>Emad Shahin, Henry Luce Associate Professor of Religion, Conflict and Peacebuilding<br>Jackie Smith, Associate Professor of Sociology and Peace Studies<br>Jason A. Springs, Assistant Professor of Religion, Ethics and Peace Studies<br>Susan M. St. Ville, Associate Director of Academic Programs<br>Ernesto Verdeja, Assistant Professor of Political Science and Peace Studies<br>Peter Wallensteen, Richard G. Starmann Sr. Research Professor of Peace Studies

## Political Science

Chair:
Michael Desch
Director of Graduate Studies:
Christina Wolbrecht
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## The Program of Studies

The primary aim of the graduate program in political science is to train qualified candidates for research and teaching. The department offers M.A. and Ph.D. degrees. It has four major subfields:

1. American politics;
2. comparative politics;
3. international relations;
4. political theory.

## M.A. Program

M.A. students must complete a minimum of 30 hours in course credits and must pass a comprehensive written examination in their major field. A minimum of 12 hours of course work is required in the major field, and a minimum of nine in a second field. However, M.A.-only students are not eligible for funding, and we rarely offer admission to those seeking only the M.A.

## Doctoral Program

Ph.D. students must complete the following requirements:

1. A total of 60 credit hours of courses, including at least 48 credit hours of substantive courses;
2. At least 12 hours of courses and comprehensive written exams in two of the department's four subfields (American politics, comparative politics, international relations, and political theory);
3. At least nine hours of course credits in a student-defined area of specialization;
4. At least 15 hours of methods, including a proseminar on scope and methods, a math for political scientists course, and an introductory quantitative methods course;
5. A reading exam in one foreign language or two additional courses in quantitative methods;
6. Submission of two papers to scholarly journals;
7. An oral examination, based on the student's dissertation proposal;
8. A Ph.D. dissertation and its successful oral defense.

Students in the department are advised to consult the listing of courses in other departments, particularly in sociology, economics, history, philosophy, and theology. Courses in other departments selected in consultation with the student's adviser are counted toward a degree.

## Teaching and Research Faculty

Ruth Abbey, John Cardinal O'Hara, C.S.C. Associate Professor

Peri E. Arnold, Professor
Sotirios A. Barber, Professor
Eileen M. Hunt Botting, the Thomas J. and Robert T. Rolfs Associate Professor of Political Science

Daniel Brinks, Associate Professor
David Campbell, John Cardinal O'Hara, C.S.C. Associate Professor

Barbara Connolly, Assistant Professor
Michael Coppedge, Professor
Christian Davenport, Professor
Darren Davis, Professor
Michael Desch, Professor and Chair
Rev. Robert Dowd, C.S.C., Assistant Professor
Andrew Gould, Associate Professor
John D. Griffin, Associate Professor

Alexandra Guisinger, Assistant Professor
Frances Hagopian, Associate Professor
Rodney E. Hero, Packey J. Dee Professor of American Democracy; Notre Dame Presidential Faculty Fellow

Tin-bor Victoria Hui, Assistant Professor
Debra Javeline, Associate Professor
Robert Johansen, Professor
Mary M. Keys, Associate Professor
Geoffrey Layman Associate Professor
Dan Lindley, Associate Professor
George A. Lopez, Theodore M. Hesburgh, C.S.C. Chair in Peace Studies and Professor

Scott Mainwaring, Eugene Conley Professor of Political Science and Director of the Kellogg Institute for International Studies
A. James McAdams, William M. Scholl Professor of International Affairs

Rev. Sean McGraw, C.S.C., Assistant Professor
Peter R. Moody, Jr., Professor
Vincent Phillip Munoz, Associate Professor
Monika Nalepa, Assistant Professor
David Nickerson, Assistant Professor
Guillermo O'Donnell, Helen Kellogg Professor
Dianne Pinderhughes, President's Distinguished Professor and Full Professor in the Department of Africana Studies

Daniel Philpott, Associate Professor
Benjamin Radcliff, Professor
John Roos, Professor
Sebastian Rosato, Assistant Professor
Rev. Timothy R. Scully, C.S.C., Professor
Naunihal Singh, Assistant Professor
Dana Villa, Packey J. Dee Professor of Political Theory
Peter Walshe, Professor
Ernesto Verdeja, Assistant Professor
Christina Wolbrecht, Director of Graduate Studies and Associate Professor

Vineeta Yadav, Assistant Professor
Catherine H. Zuckert, Nancy Reeves Dreux Professor

Michael P. Zuckert, Nancy Reeves Dreux Professor

## Psychology

Chair:

Daniel K. Lapsley<br>Director of Graduate Studies:<br>Thomas V. Merluzzi

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## The Program of Studies

The graduate program seeks a balance between training in basic research and the learning of skills in applied behavioral science, reflecting the underlying assumption that there is a common core of knowledge required for effective action within either sphere. The program consists of mastery in the general areas in psychology (such as cognition, perception, and development) and in basic methods (such as inferential statistics, research design, and the skills of scientific writing). Solid training in this core prepares the student to make an active contribution to scholarly research as academics or to solve problems in various community, clinical, or other nonacademic settings.

Graduate programs exist at the doctoral level in cognitive, counseling, developmental, and quantitative psychology.

## I. Cognitive

Doctoral candidates in cognitive psychology can acquire knowledge in several areas of cognition, including human memory, attention, psycholinguistics, and higher order processes, as well as expertise in experimental methods and quantitative analysis. Research in these substantive areas stresses issues in memory retrieval, spatial cognition, language production and comprehension, visual and auditory processing, attention, human-technology interaction, cognitive neuroscience and aging. A sophisticated array of empirical and theoretical methodologies are used, including eye tracking, bioelectric potentials, virtual environments, and human-robot interaction. This combination of experiences prepares students for postdoctoral careers in university, industry, and government settings.

## II. Counseling

The Notre Dame doctoral program in counseling psychology is built on a scientist-practitioner model of training, with an emphasis on using quantitative methods to understand psychological processes. It capitalizes on the traditional strengths of both counseling and clinical psychology to produce graduates who are broad and sophisticated producers and consumers of scientific research. The program
trains academically oriented psychologists who appreciate how science and practice inform one another and how both are indispensable to the advancement of our discipline. The University Counseling Center, Madison Center, and other local community mental health agencies provide settings for practicum training.

## III. Developmental

Doctoral candidates in the developmental program study development of individuals and contexts (e.g., family, schools, and community) and how the two interrelate. A life-span perspective is emphasized. Typical as well as atypical development, normative transitions, and the impact of nonnormative events are examined. The methodology of developmental research is stressed and effort is made to generate knowledge and theory that have potential for application to social issues related to the development of individuals across the life span. The emphasis is on developing substantive knowledge bases necessary for careers in research and scholarship, in teaching, and in intervention. Concentrations in developmental psychology vary according to the specific interests of students and fit into three categories: cognitive development, socio-emotional development, and developmental disabilities and psychopathology.

## IV. Quantitative

Doctoral candidates in the quantitative program receive advanced training in statistical methods and quantitative models applicable to psychology. The quantitative area emphasizes a wide range of topics, including traditional analysis of variance and regression, longitudinal analysis, structural equation modeling, factor mixture modeling, and categorical data analysis. Quantitative students will typically apply these methods to a topic in a substantive area of psychology, such as cognitive, counseling, or developmental.

The psychology department places great emphasis on quantitative and methodological skills throughout all of its various programs and in the training of all of our graduate students. The quantitative student will receive advanced training in one or more areas of statistical or mathematical modeling and is encouraged to actively collaborate with faculty from other areas of the department on substantive research in order to develop a practical as well as theoretical understanding of methodology.

## Curriculum

The graduate program in psychology is primarily oriented toward the doctoral degree and consists of two stages. The first requires a minimum of 24 hours of course work and completing and defending a research-based master's thesis. Course work includes enrollment in PSY 60100 and 60101 during the
first year, and other courses as specified by departmental and program requirements. Upon completion of first-stage requirements, a student is eligible to receive a master's degree by completing the additional requirements of the Graduate School, department, and their particular program.

The second stage of the program ordinarily involves additional course work, research activity, practicum (where appropriate), and preparation for the doctoral preliminary examinations, followed by work on the dissertation and internship (in the counseling program). To fulfill the doctoral degree requirements, students must take Advanced Research Methods (PSY 60161) or Psychological Measurement (PSY 60121), one additional statistics course, and at least four graduate-level seminars and achieve a total of 55 or more credit hours. The written preliminary examinations and the oral dissertation proposal defense are ordinarily completed during the third or fourth year. The awarding of the doctor of philosophy degree requires: (1) satisfactory performance on the departmental preliminary examinations; (2) completion of course requirements with a B average; and (3) submission of an approved dissertation to the Graduate School. Additional requirements by the Graduate School, the department and the program may apply.

## Teaching and Research Faculty

## Cognitive Area

James Brockmole, Associate Professor
Laura A. Carlson, Professor and Associate Dean for Professional Development in the Graduate School

Charles R. Crowell, Associate Professor and Director of the Cognitive Program and the Computer Applications Program

Kathleen M. Eberhard, Associate Professor
Bradley S. Gibson, Associate Professor
Nicole McNeil, Assistant Professor
Gabriel A. Radvansky, Professor
Michelle Wirth, Assistant Professor

## Counseling Area

Thomas G. Burish, Provost and Professor
Alexandra F. Corning, Assistant Professor
Joshua Diehl, Assistant Professor
Gerald J. Haeffel, Assistant Professor
George S. Howard, Professor, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Anita E. Kelly, Professor
Thomas V. Merluzzi, Professor and Director of Graduate Studies

Scott M. Monroe, Professor and William K. Warren Foundation Chair in Psychology

Irene J. Kim Park, Assistant Professor
Jessica Payne, Assistant Professor
Donald Pope-Davis, Vice President and Associate Provost, Professor of Psychology, Fellow in the Center for Social Concerns, and Fellow in the Institute for Educational Initiatives

David A. Smith, Associate Professor. Director of the Counseling Program and the Marital Therapy and Research Clinic

## Developmental Area

Cindy S. Bergeman, Professor
John G. Borkowski, the McKenna Family Professor of Psychology and Fellow in the Institute for Educational Initiatives

Julia M. Braungart-Rieker, Professor
Mark Cummings, Professor and the Notre Dame Chair in Psychology, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Jeanne D. Day, Professor
Joshua Diehl, Assistant Professor
Dawn M. Gondoli, Associate Professor
Daniel K. Lapsley, ACE-Collegiate Professor, Chair, and Fellow of the Institute for Educational Initiatives and of the Center for Social Concerns

Nicole M. McNeil, Assistant Professor
Darcia Narváez, Associate Professor and Fellow of the Institute for Educational Initiatives, Institute of Latino Studies, the John J. Reilly Center for Science, Technology and Values, and of the Joan B. Kroc Institute for International Peace Studies

Julianne C. Turner, Associate Professor and Concurrent Associate Professor in the Institute for Educational Initiatives

Kristin Valentino Diehl, Assistant Professor
Thomas L. Whitman, Professor

## Quantitative Area

Ying (Alison) Cheng, Assistant Professor
Gitta H. Lubke, John Cardinal O'Hara CSC Associate Professor

Scott E. Maxwell, Matthew A. Fitzsimons Professor

Anre Venter, Associate Professional Specialist
Lijuan (Peggy) Wang, Assistant Professor
Ke-Hai Yuan, Professor and Director of the Quantitative Program

Guangjian Zhang, Assistant Professor
Zhiyong (Johnny) Zhang, Assistant Research Professor

## Sociology

Chair:

Rory McVeigh<br>Director of Graduate Studies:<br>William Carbonaro

Telephone: (574) 631-6463
Fax: (574) 631-9238
Location: 810 Flanner Hall
E-mail: soc@nd.edu
Web: http://www.nd.edu/-soc

## The Program of Studies

The Department of Sociology offers training leading to the conferral of two graduate degrees: the master of arts (M.A.) and the doctor of philosophy (Ph.D.). Although the M.A. degree is available to graduate students, admission is given to applicants whose goal is the doctorate.

The M.A. degree requires 30 hours of credit, of which six credit hours may be earned for the master's thesis. All students must complete and defend a research thesis for the master's degree.

The doctoral program normally occupies five years of full-time work for students with the bachelor's degree. Core requirements must be fulfilled in the first two years according to scheduled sequencing. It is expected that the student will have completed all but the dissertation requirement by the conclusion of the fourth year of graduate study.

Several basic courses are required of all students who enter with only a bachelor's degree; in addition, they are required of other students who cannot demonstrate previous equivalent work at the graduate level. These courses include: one semester of classical sociological theory, for three credit hours; a one-semester overview of sociological methods, for three credit hours; one semester of advanced social statistics (SOC 63993), for three credit hours (the student must have taken a more elementary statistics course as a prerequisite, or have received the permission of the instructor); a proseminar, for a total of two credit hours; and one semester of participation in a research practicum for a total of three credit hours.


## SOCIOLOGY

Students are required to take at least seven additional graduate level sociology seminars, including at least one from each of the following two divisions: (1) advanced seminars in sociological theory and (2) advanced seminars in sociological methods or social statistics.

To fulfill the training and research requirements, each candidate must select two specialty areas and pass a comprehensive examination in each.

## Teaching and Research Faculty

Joan Aldous, William R. Kenan Professor of Sociology
Mark Berends, Professor and Director of the Center for Research on Educational Opportunity

Kraig Beyerlein, Assistant Professor
Jorge A. Bustamante, Eugene Conley Professor of Sociology

William J. Carbonaro, Director of Graduate Studies and Associate Professor

Gilberto Cardenas, Professor, Assistant Provost and Director of the Institute for Latino Studies

Kevin J. Christiano, Associate Professor
Jessica Collett, Assistant Professor
Larissa Fast, Assistant Professor
Robert Fishman, Professor
David S. Hachen, Jr., Associate Professor
Maureen Hallinan, the William P. and Hazel
B. White Professor of Sociology

Eugene Halton, Professor
Sean Kelly, Assistant Professor
Mary Ellen Konieczny, Assistant Professor
Omar Lizardo, Assistant Professor
Rory M. McVeigh, Chair and Professor
Daniel J. Myers, Professor and Associate Dean for Research, Graduate Studies and Centers

AnnMarie Power, Associate Professional Specialist, Director of Undergraduate Studies

David Sikkink, Associate Professor
Christian Smith, Professor and Director, Center for the Study of Religion and Society

Jackie Smith, Associate Professor
Juliana M. Sobolewski, Assistant Professor
Lynette Spillman, Associate Professor
Erika M. Summers-Effler, Assistant Professor
J. Samuel Valenzuela, Professor

Andrew J. Weigert, Professor
Michael R. Welch, Professor
Richard Williams, Associate Professor

# Teaching and Research Faculty 

The following list includes current Teaching and Research Faculty for the academic year 2009-2010.

Ruth Maree Abbey, the John Cardinal O'Hara, CSC, Associate Professor of Political Science and Acting Director of Institute for Scholarship and Liberal Arts
John H. Adams, Professor of Biological Sciences

Asma Afsaruddin, Associate Professor of Classics and Fellow in the Joan B. Kroc Institute for International Peace Studies
Mark S. Alber, Notre Dame Professor of Applied Mathematics and Concurrent Professor of Physics
Thomas Albrecht-Schmitt, Professor of Civil Engineering and Geological Sciences
Siemon Alder, Assistant Professor in Economics and Econometrics

Joan Aldous, the William R. Kenan Jr. Professor of Sociology
Samuel Amago, Associate Professor of Spanish
Joseph P. Amar, Professor of Classics and Concurrent Professor of Theology

Karl Ameriks, the McMahon-Hank Professor of Philosophy and Fellow in the Nanovic Institute for European Studies
José Anadón, Professor of Spanish Language and Literature

Gary Anderson, Professor of Theology
Thomas Anderson, Associate Professor of Spanish Language and Literature and Fellow in the Helen Kellogg Institute for International Studies
Panos J. Antsaklis, the H. C. and E. A. Brosey Professor of Electrical Engineering, and Concurrent Professor of Computer Science and Engineering
R. Scott Appleby, Professor of History

Ani Aprahamian, Professor of Physics
Elizabeth Archie, Assistant Professor of Biological Sciences
Gerald B. Arnold, Professor of Physics

Peri E. Arnold, Professor of Political Science and Director of the Hesburgh Program in Public Service
J. Matthew Ashley, Director of Graduate Studies for Theology Ph.D. Program, Associate Professor of Theology, and Fellow in the Center for Social Concerns

Hafiz Atassi, the Viola D. Hank Professor of Mechanical Engineering
David Aune, the Walter Professor of Theology
Brian Baker, Assistant Professor of Chemistry and Biochemistry
Dinshaw Balsara, Associate Professor of Physics
Charles E. Barber, the Michael P. Grace Chair and Professor of Art, Art History, and Design

Sotirios A. Barber, Professor of Political Science
Katrina D. Barron, Assistant Professor of Mathematics
Subhash C. Basu, Professor of Chemistry and Biochemistry

Stephen M. Batill, Professor of Aerospace and Mechanical Engineering

Peter H. Bauer, Professor of Electrical Engineering
Rev. Michael J. Baxter, C.S.C., Assistant Professor of Theology and Fellow in the Joan B. Kroc Institute for International Peace Studies
Timothy Bays, Associate Professor of Philosophy
Edward N. Beatty, Associate Professor of History

Gail Bederman, Associate Professor of History
Gary E. Belovsky, the Martin J. Gillen Director of UNDERC and Professor of Biological Sciences
Harvey A. Bender, Professor of Biological Sciences

Mark Berends, Professor of Sociology and Director of the Center for Research on Educational Opportunity

Cindy S. Bergeman, Associate Professor of Psychology
Jeffrey H. Bergstrand, Professor of Finance and Business Economics, Fellow in the Helen Kellogg Institute for International Studies

Gary H. Bernstein, Professor of Electrical Engineering
H. Gordon Berry, Professor of Physics

Nora J. Besansky, Professor of Biological Sciences
David M. Betson, Associate Professor of Economics

Kraig Beyerlein, Assistant Professor of Sociology
Ikaros I. Bigi, the Grace-Rupley II Professor of Physics

Alexander Blachly, Professor of Music
John Blacklow, Assistant Professor of Music
Howard A. Blackstead, Professor of Physics
Brian Blake, Professor of Computer Science and Engineering and Associate Dean of Engineering for Strategic Initiatives
Patricia A. Blanchette, Director of Graduate Studies and Associate Professor of Philosophy

Rev. Thomas E. Blantz, C.S.C., Director of Undergraduate Studies and Professor of History
W. Martin Bloomer, Director of Graduate Studies in Early Christian Studies and Associate Professor of Classics

Paul W. Bohn, the Notre Dame Presidential Faculty Fellow and the Arthur J. Schmitt Professor of Chemical and Biomolecular Engineering

Catherine Bolten, Assistant Professor of Anthropology and Peace Studies

Frank J. Bonello, Associate Professor of Economics

John G. Borkowski, the McKenna Family Professor of Psychology and Fellow in the Institute for Educational Initiatives

Eileen M. Hunt Botting, the Thomas J. and Robert T. Rolfs Associate Professor of Political Science

Maureen B. McCann Boulton, Professor of French Language and Literature

Kevin W. Bowyer, Professor and the Schubmehl-Prein Chair of Computer Science and Engineering

Sunny K. Boyd, Assistant Chair, Director of Graduate Studies, and Professor of Biological Sciences
Patricio Boyer, Assistant Professor of Romance Languages and Literature
Katherine A. Brading, Assistant Professor of Philosophy

Keith R. Bradley, the Eli J. Shaheen Professor of Classics and Concurrent Professor of History
Rev. Paul F. Bradshaw, Professor of Theology and Director, Undergraduate London Program

Julia M. Braungart-Rieker, Associate Dean of Research Studies and Professor of Psychology
Joan F. Brennecke, the Keating-Crawford Professor of Chemical Engineering

Scott D. Bridgham, Associate Professor of Biological Sciences
Daniel Brinks, Associate Professor of Political Science
Jay B. Brockman, Associate Professor of Computer Science and Engineering

James Brockmole, Associate Professor of Psychology

Jacqueline V. Brogan, Professor of English
Nyame Brown, Assistant Professor of Art, Art History, and Design

Seth N. Brown, Associate Professor of Chemistry and Biochemistry

Michael C. Brownstein, Associate Professor of East Asian Languages and Literatures

Kasey Buckles, Assistant Professor of Economics and Econometrics

Steven A. Buechler, Professor of Mathematics
Bruce A. Bunker, Professor of Physics

Karen L. Buranskas, Associate Professor of Music
Thomas G. Burish, Provost of the University
Peter C. Burns, Chair and the Henry J. Massman Jr. Professor of Civil Engineering and Geological Sciences
Jorge A. Bustamante, the Eugene P. and Helen Conley Professor of Sociology and Fellow in the Helen Kellogg Institute for International Studies

Joseph A. Buttigieg, Director of Graduate Studies in the Ph.D. in Literature Program, the William R. Kenan Jr. Professor of English and Direactor of the Office of International Studies

Theodore J. Cachey Jr., Chair of Romance Languages and Literatures, Professor of Italian Language and Literature, and the Albert J. Ravarino Director of the Devers Program in Dante Studies
David Campbell, Assistant Professor of Political Science

Jianguo Cao, Professor of Mathematics
William Carbonaro, Director of Graduate Studies and Associate Professor of Sociology, and Fellow in the Institute for Educational Initiatives
Gilberto Cárdenas, Director of the Center for Latino Studies, Professor of Sociology, and Assistant Provost

Laura A. Carlson, Professor of Psychology and Associate Dean for Professional Development in the Graduate School

Paolo G. Carozza, Associate Professor of Law, Fellow in the Nanovic Institute for European Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Francis J. Castellino, Dean Emeritus of Science, Director of the Keck Center for Transgene Research, and the KleidererPezold Professor of Biochemistry

John C. Cavadini, Chair and Associate Professor of Theology and Executive Director of the Institute for Church Life

Patricia Champion, Assistant Professor of Biological Sciences

Hsueh-Chia Chang, the Bayer Corporation Professor of Chemical Engineering
Amitabh Chaudhary, Assistant Professor of Computer Science and Engineering
Danny Z. Chen, the Phillip B. Rooney Professor of Computer Science and Engineering
Ying (Alison) Cheng, Assistant Professor of Psychology

Peter Cholak, Professor of Mathematics
Sy Min Chow, Assistant Professor of Psychology
Kevin J. Christiano, Associate Professor of Sociology
Patricia Clark, the Clare Boothe Luce Assistant Professor of Biochemistry
Paul Cobb, Assistant Professor of History and Fellow in the Joan B. Kroc Institute of International Peace Studies

Jon T. Coleman, Assistant Professor of History
Robert R. Coleman, Associate Professor of Art, Art History, and Design and Research Specialist in the Medieval Institute
Jessica Collett, Assistant Professor of Sociology
Frank H. Collins, Director of the Center for Global Health and Infectious Diseases and the George and Winifred Clark Professor of Biological Sciences
Oliver M. Collins, Professor of Electrical Engineering
Philippe A. Collon, Associate Professor of Physics

Barbara Connolly, Assistant Professor of Political Science, Fellow in the Joan B. Kroc Institute for International Peace Studies, and Fellow in the Nanovic Institute for European Studies
Francis X. Connolly, Professor of Mathematics
Rev. Michael E. Connors, C.S.C., Director of M.Div. Program and Assistant Professor of Theology

Olivia R. Constable, Director of the Medieval Institure, Director of Graduate Studies in Medieval Studies, and Professor of History
Michael Coppedge, Professor of Political Science, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Nanovic Institute for European Studies
Thomas C. Corke, Director of Hessert Laboratory for Aerospace Research and the Clark Equipment Professor of Aerospace and Mechanical Engineering
Alexandra Corning, Assistant Professor of Psychology
Craig J. Cramer, Professor of Music
Xavier Creary, the Charles L. Huisking Sr. Professor of Chemistry and Biochemistry
Gregory P. Crawford, Professor of Physics and Dean of the College of Science
Richard Cross, John A. O'Brien Professor of Philosophy

## TEACHING AND RESEARCH FACULTY

Charles R. Crowell, Director of the Computer Applications Program and Associate Professor of Psychology
E. Mark Cummings, Professor and the Notre Dame Endowed Chair in Psychology, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Lawrence S. Cunningham, the John A. O'Brien Professor of Theology

Mary Rose D'Angelo, Associate Professor of Theology
Crislyn D'souza-Schorey, the Walther Cancer Institute Associate Professor of Biological Sciences

Rev. Brian Daley, S.J., the Catherine F. Huisking Professor of Theology
John Darby, Professor of Comparative Ethnic Studies

Marian A. David, Professor of Philosophy
Christian Davenport, Professor of Peace Studies, Political Science, and Sociology
William E. Dawson, Associate Professor of Psychology

Jeanne D. Day, Professor of Psychology
John Deak, Assistant Professor of History
Seamus Deane, Donald and Marilyn Keough Professor of Irish Studies and Professor of English
Cornelius F. Delaney, Professor of Philosophy
Antonio Delgado, Assistant Professor of Physics

JoAnn DellaNeva, Professor of French and Comparative Literature

Michael R. De Paul, Professor of Philosophy
Michael Desch, Professor of Political Science and Chair

Michael Detlefsen, Professor of Philosophy
Jean A. Dibble, Associate Professor of Art, Art History, and Design

Joshua Diehl, Assistant Professor of Psychology
Jeffrey Diller, Associate Professor of Mathematics

Malgorzata Dobrowolska-Furdyna, Professor of Physics

Margaret Doody, the John and Barbara Glynn Family Professor of Literature
Dennis P. Doordan, Professor of Art, Art History, and Design and Concurrent Professor of Architecture

Julia V. Douthwaite, Professor of French Language and Literature, and Fellow in the Nanovic Institute for European Studies

Paul A. Down, Associate Professor of Art, Art History, and Design

Thomas L. Doyle, Academic Director of ACE and Director of the Master of Education Program

Rev. Michael S. Driscoll, Director of Graduate Studies in Sacred Music and the Tisch Family Professor of Theology
John Duffy, Assistant Professor of English and Director, University Writing Center and College Seminar Program

John G. Duman, the Martin J. Gillen Professor of Biological Sciences
Stephen D. Dumont, Chair and Professor of Philosophy
Patrick F. Dunn, Professor of Aerospace and Mechanical Engineering

Rev. John S. Dunne, C.S.C., the John A. O'Brien Professor of Catholic Theology

Amitava K. Dutt, Professor of Economics
William G. Dwyer, the William J. Hank Family Professor of Mathematics

Ken Dye, Director of Bands and Professor of Music

Matthew J. Dyer, Associate Professor of Mathematics
Cornelius Eady, Associate Professor of English
Kathleen M. Eberhard, Associate Professor of Psychology

Rev. Virgilio Elizondo, the Notre Dame Professor of Pastoral and Hispanic Theology, Concurrent Professor of Latino Studies, and Fellow in the Helen Kellogg Institute for International Studies

Maud Ellman, Donald and Marilyn Keough Professor of Irish Studies and Professor of English

Kent Emery Jr., Professor in the Program of Liberal Studies and Fellow in the Medieval Institute
Morten R. Eskildsen, Associate Professor of Physics

Samuel Evens, Associate Professor of Mathematics

David W. Fagerberg, Associate Professor of Theology

Stephen M. Fallon, Professor of Liberal Studies and Concurrent Professor of English

Lauren Faulkner, Assistant Professor of History

Patrick J. Fay, Professor of Electrical Engineering
Leonid Faybusovich, Professor of Mathematics
Jeffrey Feder, Director of GLOBES and Professor of Biological Sciences
Jeremy B. Fein, Director of the Environmental Molecular Science Institute and Professor of Civil Engineering and Geological Sciences

Michael T. Ferdig, Associate Professor of Biological Sciences
Harindra J. Fernando, Murdy Professor of Civil Engineering and Geological Sciences

Barbara J. Fick, Associate Professor of Law and Fellow in the Joan B. Kroc Institute for International Peace Studies

Robert M. Fishman, Professor of Sociology, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Nanovic Institute for European Studies

Rev. James F. Flanigan, C.S.C., Associate Professor of Art, Art History, and Design

Thomas P. Flint, Professor of Philosophy
Robert Flood, Professor of Economics and Econometrics

Patrick J. Flynn, Professor of Computer Science and Engineering

Christopher Fox, Director of the KeoughNaughton Institute for Irish Studies, Professor of English and Chair of Irish Language and Literature
Mary E. Frandsen, Associate Professor of Music

Curtis Franks, Assistant Professor of Philosophy

Paul Franks, Assistant Professor of Philosophy
Malcolm J. Fraser Jr., Professor of Biological Sciences

Stefan G. Frauendorf, Professor of Physics
Alfred J. Freddoso, the John and Jean Oesterle Professor of Thomistic Studies

Stephen A. Fredman, Professor of English
Dolores Warwick Frese, Professor of English
Thomas E. Fuja, Chair and Professor of Electrical Engineering

Jacek K. Furdyna, the Aurora and Tom Marquez Professor of Physics and Fellow in the Nanovic Institute for European Studies

## TEACHING AND RESEARCH FACULTY

Rev. Patrick D. Gaffney, C.S.C., Associate Professor of Anthropology, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Umesh Garg, Professor of Physics
Peter M. Garnavich, Professor of Physics
Liangyan Ge, Associate Professor of East Asian Languages and Literatures
Michael Gekhtman, Professor of Mathematics
Stephen Ellis Gersh, Professor of Medieval Studies
J. Daniel Gezelter, Associate Professor of Chemistry and Biochemistry
Teresa Ghilarducci, Director of the Higgins Labor Research Center, Professor of Economics, Fellow in the Nanovic Institute for European Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Bradley S. Gibson, Associate Professor of Psychology

Dawn M. Gondoli, Associate Professor of Psychology and Director of the Developmental Program

Holly V. Goodson, Associate Professor of Chemistry and Biochemistry
J. William Goodwine, Associate Professor of Aerospace and Mechanical Engineering

Andrew C. Gould, Associate Professor of Political Science, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Nanovic Institute for European Studies

Robert D. Goulding, Assistant Professor in the Program of Liberal Studies

Richard Gray, Associate Professor of Art, Art History, and Design

Barbara J. Green, Associate Professor of English
Stuart Greene, Associate Dean of Undergraduate Studies in the College of Arts and Letters, and Associate Professor of English
Brad Stephan Gregory, the Dorothy G. Griffin Associate Professor of Early Modern European History
Thomas Anthony Gresik, Professor of Economics and Econometrics and Fellow in the Helen Kellogg Institute for International Studies

John Griffin, Associate Professor in Political Science

Paul R. Grimstad, Assistant Chair and Associate Professor of Biological Sciences

Rev. Daniel G. Groody, CSC, Assistant Professor of Theology
Alexandra Guisinger, Assistant Professor of Political Science

Li Guo, Associate Professor of Classics
Matthew Gursky, Director of Undergraduate Studies and Professor of Mathematics
Sandra Gustafson, Associate Professor of English

Gary M. Gutting, the Notre Dame Professor of Philosophy and Fellow in the Nanovic Institute for European Studies
David S. Hachen Jr., Associate Professor of Sociology

Martin Haenggi, Associate Professor of Electrical Engineering
Jan-Lüder Hagens, Assistant Professor of German and Russian Languages and Literatures and Fellow in the Nanovic Institute for European Studies

Kristin M. Hager, Assistant Professor of Biological Sciences

Frances Hagopian, the Michael Grace III Chair in Latin American Studies and Fellow in the Joan B. Kroc Institute for International Peace Studies

Alexander J. Hahn, Director of the Kaneb Center for Teaching and Learning, Professor of Mathematics, and Fellow in the Nanovic Institute for European Studies
Ethan T. Haimo, Professor of Music
Kasturi Haldar, the Julius Nieuwland Chair of Biological Sciences

Brian Hall, Professor of Mathematics
Douglas C. Hall, Associate Professor of Electrical Engineering
Thomas N. Hall, Associate Professor of English
Maureen T. Hallinan, the William P. and Hazel B. White Professor of Arts and Letters

Eugene W. Halton, Professor of Sociology
Christopher S. Hamlin, Director of Graduate Studies and Professor of History, and Fellow in the Nanovic Institute for European Studies

Qing Han, Professor of Mathematics
Susan Cannon Harris, Associate Professor of English and Concurrent Associate Professor in the Keough-Naughton Institute for Irish Studies

Kevin John Hart, the Notre Dame Professor of Philosophy and Literature, and Fellow, Nanovic Institute for European Studies

Gregory V. Hartland, Associate Chair and Professor of Chemistry and Biochemistry

Ronald A. Hellenthal, Assistant Chair and Professor of Biological Sciences
Ben A. Heller, Associate Professor of Spanish Language and Literature
Jessica J. Hellmann, Assistant Professor of Biological Sciences

Paul Helquist, Professor of Chemistry and Biochemistry

Kenneth W. Henderson, Director of Graduate Studies and Professor of Chemistry and Biochemistry

Glenn Hendler, Associate Professor of English
Jennifer Herdt, Associate Professor of Theology
Rodney E. Hero, the Packey J. Dee Professor of American Democracy

Michael D. Hildreth, Associate Professor of Physics
M. Catherine Hilkert, Professor of Theology

Davide A. Hill, Associate Professor of Chemical and Biomolecular Engineering
A. Alexandrou Himonas, Associate Chair and Professor of Mathematics
Richard Hind, Associate Professor of Mathematics

Peter Holland, the McMeel Professor in Shakespeare Studies in the Department of Film, Television, and Theatre, and Concurrent Professor of English

Hope Hollocher, Associate Professor of Biological Sciences

Vittorio Hösle, the Paul G. Kimball Professor of Arts and Letters, Concurrent Professor of Philosophy, Concurrent Professor of Political Science, and Fellow in the Nanovic Institute for European Studies

Alan Howard, Associate Chair and Professor of Mathematics

Don A. Howard, Director of Graduate Studies in the History and Philosophy of Science, Professor of Philosophy, and Fellow in the Nanovic Institute for European Studies

George S. Howard, Professor of Psychology, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Jay Christopher Howk, Assistant Professor of Physics

Robert A. Howland Jr., Associate Professor of Aerospace and Mechanical Engineering

Bei Hu, Chair and Professor of Mathematics
Xiaobo (Sharon) Hu, Director of Graduate Studies and Associate Professor of Computer Science and Engineering

Yih-Fang Huang, Professor of Electrical Engineering and Concurrent Professor of Computer Science and Engineering
Paul W. Huber, Codirector of the Molecular Biosciences Program and Professor of Chemistry and Biochemistry

Romana Huk, Associate Professor of English
Amanda Hummon, Walther Cancer Institute Assistant Professor of Biochemistry

Daniel M. Hungerman, Assistant Professor of Economics and Econometrics

David R. Hyde, Professor of Biological Sciences and the Rev. Howard J. Kenna, CSC, Memorial Director of the Center for Zebrafish Research

Anthony K. Hyder, Professor of Physics, Associate Chair, and Director of Undergraduate Studies

Kristine L. Ibsen, Professor of Spanish Language and Literature and Fellow in the Helen Kellogg Institute for International Studies

Frank Incropera, the Matthew H. McCloskey Dean Emeritus of the College of Engineering and the H. Clifford and Evelyn A. Brosey Professor of Mechanical Engineering

Antonette K. Irving, Assistant Professor of English
Jesús A. Izaguirre, Associate Professor of Computer Science and Engineering

Dennis C. Jacobs, Vice President and Associate Provost of the University, Professor of Chemistry and Biochemistry and Fellow in the Center for Social Concerns

Boldizsár Jankó, Professor of Physics
Anja Jauernig, Assistant Professor of Philosophy

Debra Javeline, Associate Professor of Political Science

Thomas J. Jemielity, Professor of English
Debdeep Jena, Associate Professor of Electrical Engineering
Rev. John I. Jenkins, C.S.C., President of the University and Associate Professor of Philosophy

Lionel M. Jensen, Associate Professor of East Asian Languages and Literatures and Fellow in the Helen Kellogg Institute for International Studies

Richard A. Jensen, Chair and Professor of Economics and Fellow in the Helen Kellogg Institute for International Studies

Carlos Jerez-Farrán, Professor of Spanish Language and Literature and Fellow in the Nanovic Institute for European Studies

Colin Philip Jessop, Associate Professor of Physics

Robert C. Johansen, Professor of Political Science, Fellow in the Helen Kellog Institute for International Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Maxwell Johnson, Professor of Theology
Paul G. Johnson, Associate Professor of Music
Cyraina Johnson-Roullier, Associate Professor of English
Lynn Joy, Professor of Philosophy
Encarnación Juárez-Almendros, Associate Professor of Spanish Language and Literature

Eric J. Jumper, Professor of Aerospace and Mechanical Engineering
S. Alex Kandel, Associate Professor of Chemistry and Biochemistry

Jeffrey C. Kantor, Professor of Chemical and Biomolecular Engineering
Ahsan Kareem, the Robert M. Moran Professor of Civil Engineering and Geological Sciences

Asher Kaufman, Assistant Professor of History
M. Cathleen Kaveny, the John P. Murphy Foundation Professor of Law and Professor of Theology
Anita E. Kelly, Professor of Psychology
Sean Kelsey, Assistant Professor of Philosophy
Kathryn Kerby-Fulton, Notre Dame Professor of English

Mary M. Keys, Associate Professor of Political Science

Tracy Kijewski-Correa, the Rooney Family Assistant Professor of Civil Engineering and Geological Sciences and Associate Chair

Peter Kilpatrick, the Matthew H. McCloskey Dean of the College of Engineering and Professor of Chemical Engineering

Irene J. Kim, Assistant Professor of Psychology
Kwan Suk Kim, Professor of Economics
David J. Kirkner, Associate Professor of Civil Engineering and Geological Sciences

Julia F. Knight, Director of Graduate Studies and the Charles L. Huisking Professor of Mathematics

Peter M. Kogge, the Ted H. McCourtney Professor of Computer Science and Engineering

James J. Kolata, Professor of Physics
Christopher F. Kolda, Associate Professor of Physics

Paul V. Kollman, Assistant Professor of Theology and Fellow in the Joan B. Kroc Institute for International Peace Studies

Donald P. Kommers, the Joseph and Elizabeth Robbie Professor of Political Science, Concurrent Professor of Law, and Fellow in the Nanovic Institute for European Studies

Thomas H. Kosel, Associate Professor of Electrical Engineering

Janet Kourany, Associate Professor of Philosophy

Robert A. Krieg, Professor of Theology and Fellow in the Nanovic Institute for European Studies
William J. Krier, Associate Professor of English
Brian Krostenko, Associate Professor of Classics

Thomas A. Kselman, Professor of History and Fellow in the Nanovic Institute for European Studies

Greg P. Kucich, Professor of English and Director of the London Program
Charles F. Kulpa Jr., Professor of Biological Sciences
M. Kenneth Kuno, Assistant Professor of Chemistry and Biochemistry

Yahya C. Kurama, Director of Graduate Studies and Associate Professor of Civil Engineering and Geological Sciences

David J. Ladouceur, Associate Professor of Classics

Gary A. Lamberti, Chair and Professor of Biological Sciences

Jesse M. Lander, Director of Graduate Studies and Associate Professor of English
J. Nicholas Laneman, Associate Professor of Electrical Engineering

Kevin A. Lannon, Assistant Professor of Physics
A. Graham Lappin, Chair and Professor of Chemistry and Biochemistry
Daniel K. Lapsley, Professor of Psychology and Chair

Geoffrey Layman, Associate Professor of Political Science

William H. Leahy, Professor of Economics
John Paul Lederach, Professor of International Peacebuilding

François Ledrappier, the John and Margaret McAndrew Professor of Mathematics

Byung-Joo Lee, Associate Professor of Economics

Sean Lee, Assistant Professor of Biological Sciences
David T. Leighton Jr., Professor of Chemical and Biomolecular Engineering
Michael D. Lemmon, Professor of Electrical Engineering

Craig S. Lent, the Frank M. Freimann Professor of Electrical Engineering

Blake Leyerle, Associate Professor of Theology and Concurrent Associate Professor of Classics
Lei Li, Associate Professor of Biological Sciences

Marya Lieberman, Associate Professor of Chemistry and Biochemistry
Sylvia Li-Chun Lin, Associate Professor of East Asian Languages and Literatures
Daniel A. Lindley III, Associate Professor of Political Science and Fellow in the Joan B. Kroc Institute for International Peace Studies
Molly Lipscomb, Assistant Professor of Economics and Econometrics
Katherine Wenjun Liu, Assistant Professor, Aerospace and Mechanical Engineering

Xiaobo Liu, the Rev. Howard J. Kenna, CSC, Memorial Professor of Mathematics
A. Eugene Livingston, Professor of Physics

Omar Lizardo, Assistant Professor of Sociology
David M. Lodge, Professor of Biological Sciences and Director for the Center of Acquatic Conservation
George A. Lopez, Professor of Political Science, Fellow in the Helen Kellogg Institute for International Studies, and Director of Policy Studies and Fellow in the Joan B.

Kroc Institute for International Peace Studies
Martina Lopez, Director of Graduate Studies and Associate Professor of Art, Art History, and Design

John M. LoSecco, Professor of Physics
Michael J. Loux, the George N. Shuster Professor of Philosophy
Gitta H. Lubke, the John Cardinal O'Hara, CSC, Assistant Professor of Psychology
Semion Lyandres, Associate Professor of History and Fellow in the Nanovic Institute for European Studies

Sabine G. MacCormack, the Rev. Theodore M. Hesburgh, C.S.C., Professor of Arts and Letters
Alasdair MacIntyre, O'Brien Senior Research Professor of Philosophy
Louis A. MacKenzie Jr., Associate Professor of French Language and Literature

Gregory R. Madey, Professional Specialist and Concurrent Associate Professor of Computer Science and Engineering

Edward J. Maginn, Professor of Chemical and Biomolecular Engineering and Associate Dean for Academic Programs in the Graduate School

Cynthia Mahmood, Associate Professor of Anthropology

Scott P. Mainwaring, the Eugene and Helen Conley Professor of Political Science, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Bradley J. Malkovsky, Associate Professor of Theology
Joseph P. Marino, the William K. Warren Professor of Chemistry

Nelson C. Mark, the Alfred C. DeCrane Professor of International Economics, Director of Graduate Studies, and Fellow in the Helen Kellogg Institute for International Studies
Alexander Martin, Associate Professor of History

Julia Marvin, Associate Professor in the Program of Liberal Studies

Grant J. Mathews, Director of the Center for Astrophysics and Professor of Physics
Karel Matous, Associate Professor of Aerospace and Mechanical Engineering

Timothy Matovina, Director of the Charles and Margaret Hall Cushwa Center for the Study of American Catholicism and Professor of Theology
Sarah Maurer, Assistant Professor of English
Patricia A. Maurice, Director of the Center for Environmental Science and Technology and Professor of Civil Engineering and Geological Sciences
Scott E. Maxwell, the Matthew A. Fitzsimons Professor of Psychology
Christine M. Maziar, Vice President and Associate Provost of the University and Professor of Electrical Engineering
Elizabeth Forbis Mazurek, Chair and Associate Professor of Classics
A. James McAdams, Director of the Nanovic Institute for European Studies, the William M. Scholl Professor of International Affairs, Fellow in the Helen Kellogg Institute for International Studies, and Fellow in the Joan B. Kroc Institute for International Peace Studies

Rev. Richard P. McBrien, the CrowleyO'Brien Professor of Theology
Mark J. McCready, Chair and Professor of Chemical and Biomolecular Engineering
Mary Ann McDowell, Associate Professor of Biological Sciences

Paul J. McGinn, Director of the Center for Molecularly Engineered Materials and Professor of Chemical and Biomolecular Engineering
Rev. Sean McGraw, C.S.C., Assistant Professor of Political Science

John McGreevy, the Rev. John A. O'Brien Professor of History
Gerald McKenny, Director of the Reilly Center for Science, Technology, and Values and Associate Professor of Theology
Sarah McKibben, Assistant Professor of Irish Language and Literature
Nicole McNeil, Assistant Professor of Psychology
Peter T. G. McQuillan, Associate Professor of Classics and Concurrent Associate Professor in the Keough-Naughton Institute for Irish Studies

Joyelle McSweeney, Associate Professor of English

Rory M. McVeigh, Chair and Professor of Sociology
Rev. John P. Meier, the William K. Warren Professor of Catholic Theology

# TEACHING AND RESEARCH FACULTY 

Dan Meisel, Professor of Chemistry and Biochemistry

Orlando Menes, Associate Professor of English
Thomas V. Merluzzi, Professor of Psychology and Director of Graduate Studies

Leon J. Mertensotto, C.S.C., Associate Professor of Theology
Margaret Meserve, Carl E. Koch Associate Professor of History
Juan C. Migliore, Professor of Mathematics
Albert E. Miller, Professor of Chemical and Biomolecular Engineering
Marvin J. Miller, the George and Winifred Clark Professor of Chemistry

Philip E. Mirowski, the Carl E. Koch Professor of Economics

Rev. Wilson D. Miscamble, C.S.C., Professor of History

Gerard K. Misiolek, Associate Professor of Mathematics

Shahriar Mobashery, the Navari Professor of Chemistry and Biochemistry
Christian R. Moevs, Associate Professor of Italian Language and Literature
Peter R. Moody Jr., Professor of Political Science
Scott C. Morris, Associate Professor of Aerospace and Mechanical Engineering

Vincent Phillip Munoz, Associate Professor of Political Science

Dian Hechtner Murray, Chair of East Asian Languages and Literature and Professor of History
Daniel J. Myers, Professor of Sociology and Associate Dean for Research, Graduate Studies and Centers

Chongzheng Na, Assistant Professor of Civil Engineering and Geological Studies
Jaroslaw (Jarek) Nabrzyski, Concurrent Associate Professor of Computer Science and Engineering and Director of the Center for Research Computing
Joseph Nahas, Visiting Professor of Computer Science and Engineering

Darcia Narvaez, Associate Professor of Psychology

Clive R. Neal, Professor of Civil Engineering and Geological Sciences

Robert C. Nelson, Professor of Aerospace and Mechanical Engineering
Robert Nerenberg, Assistant Professor of Civil Engineering and Geological Sciences

Kathie E. Newman, Director of Graduate Studies and Professor of Physics
Martin L. Nguyen C.S.C., Associate Professor of Art, Art History, and Design
Bríona Nic Dhiarmada, Endowed Professor and Notre Dame Chair in Irish Language and Literature

Walter J. Nicgorski, Professor in the Program of Liberal Studies and Concurrent Professor of Political Science

Liviu Nicolaescu, Associate Professor of Mathematics

Glen Niebur, Director of Graduate Studies and Associate Professor of Aerospace and Mechanical Engineering

Michasel Niemier, Assistant Professor of Computer Science and Engineering

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Robert E. Norton, Professor of German, and Fellow in the Nanovic Institute for European Studies
Thomas L. Nowak, Professor of Chemistry and Biochemistry
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Guillermo O'Donnell, the Helen Kellogg Professor of Political Science and Fellow in the Helen Kellogg Institute for International Studies

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Joseph E. O'Tousa, Professor of Biological Sciences

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Helen Kellogg Institute for International Studies

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Rev. Hugh Rowland Page Jr., Director of the Program in African and African American Studies and Associate Professor of Theology

Samuel Paolucci, Professor of Aerospace and Mechanical Engineering

Jessica Payne, Assistant Professor of Psychology
Catherine Perry, Associate Professor of French Language and Literature and Fellow in the Nanovic Institute for European Studies

Michael Pfrender, Associate Professor of Biological Sciences
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Martin H. Wolfson, Associate Professor of Economics

Pit-Mann Wong, Professor of Mathematics

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Xiaoshan Yang, Associate Professor of East Asian Languages and Literature
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Robin Darling Young, Associate Professor of Theology
Ke-Hai Yuan, the William J. and Dorothy K. O'Neill III Associate Professor of Psychology
Randall C. Zachman, Professor of Theology
Katherine Zieman, Assistant Professor of English
Catherine Zuckert, the Nancy Reeves Dreux Professor of Political Science
Michael Zuckert, the Nancy Reeves Dreux Professor of Political Science
Campus Map


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 Burke Memorial Golf Course .... Cafeteria (North Dining Hall)................................... Cafeteria (North Dining Hall).... Campus Computer/Math.................................................. 1017

 응 oleman Center for Campus

 Corby Hall ...............................





 Early Childhood Development Center $\stackrel{1146}{\text { Earth Sciences Building ............ } 1004}$

## The Ernestine Raclin and O.C. Carmichael, Jr. Hall and W.M. Keck Center for Transgene Research

## ALPHABETICAL LISTING OF CAMPUS bUILDINGS






## GRE Subject Test Requirements

The following is a list of the graduate programs at the University and the graduate degrees conferred. Please note that the University requires all applicants to take the GRE General Test. Many programs also require an additional examination, the GRE Subject Test.


Notes:
$\dagger$ Includes Bioengineering and Environmental Engineering
${ }^{\dagger \dagger}$ Separate application required. Contact the Graduate Admissions Office, University of Notre Dame, 502 Main Bldg., Notre Dame, IN 46556-5602 requesting the peace studies application. E-mail contact is Grad.Ad.1@nd.edu or for specific questions, kroc-admissions. $1 @$ nd.edu.

Where to write for GRE and TOEFL information:

GRE•ETS
P.O. Box 6000

Princeton, NJ 08541-6000
U.S.A.

Web: http://www.gre.org

TOEFL
P.O. Box 6151

Princeton, NJ 08541-6151
U.S.A.

Web: http://www.toefl.org

GRE and TOEFL application booklets generally are available at U.S. colleges and universities and at U.S. consulates and U.S. Information Services offices abroad. Check with these sources before writing to Princeton.


# Correspondence 

The University:
University of Notre Dame
Notre Dame, Indiana 46556
Phone: (574) 631-5000
The Graduate School:
502 Main Building
University of Notre Dame
Notre Dame, Indiana 46556
Phone: (574) 631-7544
Fax: (574) 631-4183
E-mail: gradsch@nd.edu

Admissions (Graduate): 502 Main Building
(631-7706) gradad@nd.ed
Campus Ministry: 103 Hesburgh Library
(631-7800) ministry@nd.edu

Career Development: 248 Flanner Hall (631-5200) ndcps@nd.edu

Counseling Center: University Health Center (631-7336)

Financial Aid: 115 Main Building (631-6436)
finaid@nd.edu

## Graduate Student Union:

LaFortune Student Center (631-6963) gsu@nd.edu

Health Services: University Health Center
(631-7497 or 7567)
Housing: 305 Main Building
(631-5878) orlh@nd.edu
Insurance: Accounts and Insurance,
University Health Center
(631-6114)
International Student Services and
Activities (ISSA): 204 LaFortune
Student Center (631-3825) issa@nd.edu
Library: Director, 221 Hesburgh Library
(631-5252)

Registrar: 105 Main Building
(631-7043) registrar.1@nd.edu
Security: Security Office
(631-5555) ndspd@nd.edu
Student Accounts: 100 Main Building (631-7113) stdacct@nd.edu

Student Activities: 315 LaFortune Student Center (631-9314) sao@nd.edu

Student Affairs: 316 Main Building (631-5550)

Summer Session: 105 Main Building
(631-7043) sumsess@nd.edu

## Departments

The following represent the telephone numbers (Prefix: 631) and e-mail addresses of the departments and programs affiliated with the Graduate School.

4379 Aerospace and Mechanical Engineering amedept@nd.edu

3096 Architecture arch@nd.edu

7602 Art, Art History, and Design art@nd.edu

5580 Bioengineering
bioeng@nd.edu
6552 Biological Sciences
biosadm@nd.edu

5580 Chemical Engineering
chegdept@nd.edu

7058 Chemistry and Biochemistry chemistry@nd.edu

5381 Civil Engineering and Geological Sciences dash.1@nd.edu

8802 Computer Science and
Engineering csewww@nd.edu

7526 Creative Writing
creativewriting@nd.edu
7090 Early Christian Studies ecs.1@nd.edu

8873 East Asian Languages and Literatures eall@nd.edu

7698 Economics jtate@nd.edu

7730 Education (M.A.) nuzzi.1@nd.edu

9779 Education (M.Ed.) ace.1@nd.edu

5482 Electrical Engineering eegrad@nd.edu

6618 English english@nd.edu
5572 German and Russian Languages and Literatures grl@nd.edu

9017 Political Science psgrad@nd.edu

7266 History
history@nd.edu

5015 History and Philosophy of Science nd.reilly.31@nd.edu

5574 Indiana University School of Medicine - South Bend

Navari.1@nd.edu

7245 Mathematics
math@nd.edu

6603 Medieval Institute
medinst@nd.edu

6093 Molecular Biosciences Program biosadm@nd.edu

5600 Office of Information Technologies info.1@nd.edu, http://oit.nd.edu
$\square$

## CORRESPONDENCE

| 6841 | Office of Multicultural Student Programs and Services omsa@nd.edu |
| :---: | :---: |
| 7157 | Disability Services osd@nd.edu |
| 0481 | Ph.D. Program in Literature litprog@nd.edu |
| 4278 | Philosophy ndphilo@nd.edu |
| 7182 | Physics physics@nd.edu |
| 6650 | Psychology psych@nd.edu |
| 6886 | Romance Languages and Literatures romlang@nd.edu |
| 6585 | Sociology soc@nd.edu |
| 4254 | Theology-M.A. and M.T.S. Program theo@nd.edu |
| 5682 | Theology-M.Div. Program mdiv.1@nd.edu |
| 4254 | Theology-M.S.M. Program driscoll.7@nd.edu |
| 5732 | Theology—Ph.D. Program theodgs@nd.edu |

## WWW ND Home Page

More information on Notre Dame's graduate programs is available online through the individual program Web sites and the Graduate School's site at: http://graduateschool.nd.edu.

## For More Information

For further admissions information, contact:
University of Notre Dame
Office of Graduate Admissions
502 Main Building
Notre Dame, IN 46556-5602
631-7706

## Business and Law

Information concerning business and law degrees is obtained by writing or calling:

Mendoza College of Business
Graduate Division,
631-8488

Notre Dame Law School
Office of Admissions,
631-6627

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[^0]:    The master's degree program consists of at least 15 credit hours of course work, plus 15 credit hours of thesis research and graduate seminar. For the Ph.D. degree, a minimum of 30 credit hours of course work is required, in addition to 42 credit hours of dissertation research and graduate seminar. There are required courses in the areas of thermodynamics, reaction engineering, transport phenomena, and mathematical methods.

[^1]:    - six courses (18 credits) in the area of concentration;
    - one course each in five other areas (15 credits);
    - three free electives (9 credits).

