MS and PhD Degrees

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Civil and Environmental Engineering

Fall 2008 Quarter of Entry

(Please note: There are no Winter or Spring Admissions)
Preventing for Research, Teaching, and Practice

The Department of Civil and Environmental Engineering (CEE) at Northwestern University is a premier research and academic department, ranked among the top CEE departments in the nation. With 24 experienced faculty members, CEE provides graduate students with an exceptional range of opportunities to advance both their knowledge and careers in a scholarly community small enough to assure individual attention and effective mentoring.

CEE prepares students to become the next generation of leaders in civil and environmental engineering research, academic, corporate, and public service settings. We offer the Master of Science (MS) and Doctor of Philosophy (PhD) degrees in Civil and Environmental Engineering and in Theoretical and Applied Mechanics through Northwestern University’s Graduate School. In addition, CEE offers the Master of Science in Project Management (MPM) professional degree. Students work with their adviser to construct study plans suited to their unique interests. These include extensive options for courses outside civil and environmental engineering to address a wide variety of social, economic, and physical challenges of constructing and managing the industrial and public works infrastructure and to develop the skills necessary for success in research, teaching, and practice.

MS and PhD Degrees in Civil and Environmental Engineering ...

Programs of Study

- Environmental Engineering and Science (EES)
  Area Coordinator (Prof Kimberly Gray – k-gray@northwestern.edu)
  - Environmental engineers are the technical professionals who identify and design solutions for environmental problems. They seek to shield the environment from the harmful effects of human activity, protect human populations from adverse environmental events such as floods and disease, and restore environmental quality for ecological and human well-being. Traditionally, environmental engineers provided safe drinking water, treated and properly disposed of wastes, maintained air quality, controlled water pollution, and remediated sites contaminated by hazardous substances. They continue to do this as well as monitor the quality of the air, water, and land and develop new environmental control technologies. The EES program also offers a dual MS/Master of Project Management (MPM) degree.

- Geotechnics (GEO) and Environmental Geotechnics (EGE)
  Area Coordinator (Prof Charles Dowding – c-dowding@northwestern.edu)
  - ... builds knowledge of the engineering properties of soil and rock to ensure the strength and stability of structures built in or of these natural materials. Current research at Northwestern includes advanced laboratory testing and field evaluation techniques; modeling of soil, rock, and groundwater behavior to predict and control unwanted movement of structures;
methods of ground improvement; remote measurement of landslides in rock and soil with time domain reflectometry; and prediction and construction control of deformation from deep excavation in soft soil.

- **Mechanics of Materials and Solids (MMS)**
  Area Coordinator (Prof Isaac Daniel – imdaniel@northwestern.edu)
  
  … uses analytical, experimental, and computational methods to study the mechanical behavior of solid materials. Applications include a wide range of problems, such as the assessment of structural integrity through methods of fracture mechanics and nondestructive evaluation, the simulation of vehicle crashworthiness, the behavior of composite materials, the development of new computational methods, and the mechanics of earthquake instabilities. Among recent projects are constitutive models for geomaterials, fracture mechanics–based structural integrity assessment of aircraft and bridges, and development of novel finite-element techniques and new computational methods, such as the element-free Galerkin method and the natural element method.

Please note Mechanics of materials and solids (MMS) and Structural engineering and materials (STR) are highly cross-disciplinary with one another – enough so, to be informally named Mechanics of Materials and Structures.

- **Structural Engineering and Materials (STR)**
  Area Coordinator (Prof Surendra Shah – s-shah@northwestern.edu)
  
  … applies knowledge about materials and loads to designing, constructing, and predicting the behavior of unique structures such as buildings, bridges, dams, and tunnels. Research at Northwestern is focused on understanding and using properties of materials, particularly cement-based materials, in structural applications. Current work includes development of extruded fiber-reinforced concrete, studies of fracture using computer vision and microtomography, life-cycle prediction of concrete infrastructure, fracture and size effect in concrete and composites, failure analysis based on micromechanics, and effects of the colloidal structure of calcium-silicate-hydrate on concrete durability.

- **Transportation Systems Analysis and Planning (TRN)**
  Graduate Admissions Coordinator for TRN (Prof Pablo Durango Cohen – pdc@northwestern.edu)
  
  … addresses ways to provide efficient, safe, and environmentally sound mobility for people and goods. Transportation research is strongly analytically based and includes advanced, activity-based models to predict traveler behavior in urban and intercity contexts; dynamic models of network operations for logistics and traffic management; safety studies of the consequences of operator fatigue; relationship between land use, site design, and travel behavior; and studies of the impacts of policies, technologies, services, and programs on travelers and transportation systems.

- **Project Management**
  Prof Raymond Krizek – rjkrizek@northwestern.edu
  
  If you are seeking a PhD in Civil and Environmental Engineering in the area of Project Management, you will be required either to already have an MS degree in Civil or Environmental Engineering, or to have successfully completed the Master of Science in Project Management (MPM) degree here at Northwestern — before being considered for PhD studies.
In addition, the PhD student in Civil and Environmental Engineering in the area of Project Management will be responsible for their own tuition and financial support.

Before you apply for the PhD in Civil and Environmental Engineering in the area of Project Management, please review the MPM program requirements at http://mpm.northwestern.edu/ to formulate your questions. Then feel free to email (please include your phone number) the MPM program’s Director, Prof Raymond Krizek (rjkrizek@northwestern.edu) for discussion and details.

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**MS and PhD Degrees in Theoretical and Applied Mechanics ...**

- **Theoretical and Applied Mechanics (TAM)**
  Area Coordinator (Prof Isaac Daniel – imdaniel@northwestern.edu)

  ... is an interdisciplinary field of engineering that combines the fundamental physical sciences with powerful mathematical, computational, and experimental techniques to develop advanced structures and materials with optimized loadcarrying capability and improved resistance to failure. Research projects include applications of computational mechanics tools, such as finite-element and meshless methods, fracture mechanics, and mechanics of materials, to problems of shape-memory alloys, geomaterials, composites, and nondestructive evaluation.

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**Master of Science in Project Management ...**

- **Master of Project Management (MPM)**
  Director, Prof Raymond Krizek (rjkrizek@northwestern.edu)
  Assoc Director, Dr. Ahmad Hadavi (a-hadavi@northwestern.edu)

  Unlike a typical MS degree, which enhances technical knowledge in a specific area which can, if desired, serve as a preparatory degree for PhD research, the Master of Science in Project Management is intended to be a professionally-oriented terminal degree offering a holistic overview of a technical area within a practical business prospective needed by project managers. While its primary objective is not to prepare for a research-oriented PhD program, several MPM graduates have successfully gone on to obtain a PhD.

  The program consists of core managerial courses (finance, accounting, project scheduling, engineering law) complemented by a chosen specialization within Construction Management; A/E/C Business Management; Environmental Management; or Infrastructure Management. Classes are taught by University faculty and practicing professionals who bring a wealth of real-world experience to the course offerings.

  MPM is managed under the auspices of the Civil and Environmental Engineering Department, but is not part of the Northwestern University Graduate School. Therefore, do not apply to the Northwestern University Graduate School, rather go to the MPM website at http://mpm.northwestern.edu/ and apply directly to the program.
Brian T. Moran, Professor and Chair; PhD, Brown. Computational methods; continuum and fracture mechanics; multi-scale mechanics of materials, mechanics of biofilms, mechanics of the human spine. (MMS)

Jan D. Achenbach, Walter P. Murphy Professor; PhD, Stanford. Member, National Academy of Engineering and Member, National Academy of Sciences. Solid mechanics, waves in solids, ultrasonics, nondestructive evaluation. (MMS and TAM)

Jose Andrade, Assistant Professor; PhD, Stanford. Developing multi-phase framework to model deformation-diffusion problems in porous media, computational inelasticity and finite element procedures. (GEO)

Neal Blair, Professor; PhD, Stanford. Organic chemistry, biogeochemical transformations of carbon, evolution of organic carbon as particles move from exposed bedrock on land to ultimate burial at sea. (EES, Earth and Planetary Sciences)

Zdeněk P. Bažant, Walter P. Murphy Professor; PhD, Czechoslovak Academy of Sciences. Member, National Academy of Engineering and Member, National Academy of Sciences. Solid mechanics; structural engineering; materials, especially fracture, damage, creep, stability, concrete, composites, geomaterials, and ice. (STR, MMS)

Isaac M. Daniel, Walter P. Murphy Professor; PhD, IIT. Processing and mechanics of composite materials, experimental mechanics, damage mechanics, nondestructive evaluation. (MMS and TAM)

Charles H. Dowding, Professor; PhD, Illinois at Urbana-Champaign. Geotechnics, rock mechanics, construction and blasting vibrations, exploration decisions, TDR instrumentation. (GEO and EGE)

Pablo L. Durango-Cohen, Assistant Professor, PhD, Univ of Calif—Berkeley. Infrastructure deterioration, production, operations, manufacturing, management of civil infrastructure systems. (TRN)

Richard J. Finno, Professor; PhD, Stanford. Geotechnical engineering, earth retaining structures, deep foundations, nondestructive evaluation of foundations. (GEO and EGE)

Joseph A. FitzPatrick, Associate Professor; PhD, Harvard. Wastewater treatment technologies, environmental engineering ethics, philosophy and design. (EES)

Jean-François Gaillard, Associate Professor; DSc, Université Denis Diderot–Paris VII. Environmental chemistry, environmental engineering, metal speciation. (EES)

Kimberly A. Gray, Associate Professor; PhD, Johns Hopkins. Environmental chemistry, catalysis, physicochemical processes, hazardous chemical treatment technology, environmental restoration. (EES)

Ahmad Hadavi, Adjunct Professor, PhD, Northwestern, Associate Director, Master of Project Management (MPM)

Yonggang Huang, Professor; PhD, Harvard. Machinability of carbon nanotube composites, micro/nanomechanics of smart materials, dynamic failure modes of marine composite materials under blast loading. (STR, MMS)

Hamlin M. Jennings, Professor; PhD, Brown. Phase diagrams, kinetics, cement-based materials, modeling C-S-H, relationship to creep and shrinkage, rheology (STR)

Leon M. Keer, Walter P. Murphy Professor; PhD, Minnesota. Member, National Academy of Engineering. Contact mechanics, fracture mechanics, elasticity. (MMS and TAM)

Frank S. Koppelman, Professor; PhD, MIT. Travel demand analysis, modeling/forecasting, econometrics. (TRN)

Raymond J. Krizek, Stanley F. Pepper Professor; PhD, Northwestern. Member, National Academy of Engineering. Director, Master of Project Management program. Geotechnical engineering, ground improvement. (GEO)

Yu Nie, Assistant Professor; PhD, Berkeley. Network optimization, traffic flow theory and traffic simulation. (TRN)

Aaron I. Packman, Associate Professor; PhD, Caltech. Environmental transport process, fluid mechanics, aquatic chemistry. (EES)

John W. Rudnicki, Professor; PhD, Brown. Inelastic behavior, fracture and failure of solids, mechanics of earth faulting, coupling of fluid flow with deformation. (MMS and TAM)

Joseph L. Schofer, Professor; PhD, Northwestern. Transportation evaluation, safety, market research, traveler behavior and benefits, policy analysis and planning. (TRN)

Surendra P. Shah, Walter P. Murphy Professor; PhD, Cornell. Structural materials, composites, fracture of brittle materials, durability of high performance concrete, nondestructive evaluations. (STR)

Jeffrey J. Thomas, Research Associate Professor; PhD, Northwestern. Microstructure of the calcium-silicate hydrate (C-S-H) gel phase that forms during the hydration of cement-based materials. (STR)
CEE graduate students come from throughout the world with degrees in a variety of fields including engineering, mathematics, the physical sciences, management, economics, and other social sciences. Admissions decisions are based on the overall academic picture presented through GRE exams and transcripts, as well as the equally weighted of the Statement of Purpose and Letters of Recommendation:

1. **Transcripts**

   Two official transcripts (bearing the registrar’s signature and/or the institution’s seal) are required from each post-secondary institution attended, including records from courses in any university-level institution attended abroad.

   If you are working toward a master’s degree at another institution, you must submit official transcripts of your undergraduate work as well as an official transcript of all graduate work completed at the time of filing your application to Northwestern University. Transcripts should show all the coursework taken, whether or not within a degree program, the grades received, and the degrees earned.

   We must also receive certification of conferral of degrees, including the date each degree was awarded. This information may be included on the final transcript or on the diploma.

   **Note to International Applicants**

   The academic records we refer to as transcripts should provide a listing, year-by-year, of all courses taken and the grade or marks received for each one. It is helpful to have the grading scale of the institution and the student’s rank in class included when such information is available. Do not submit secondary school records for they are not needed and will, for safety, be shredded.

   To be considered, all non-English documents must be accompanied by official English translations. These translations must bear an original ink signature and seal. Translations alone cannot be accepted.

2. **Letters of Recommendation**

   Letters of Recommendation are always read with great interest by the reviewing Faculty. Please select a minimum of 2 professors or supervisors familiar with your academic or professional work to be your recommenders. Ask each one to submit their Letter of Recommendation using one of these two methods:
a. **ELECTRONICALLY** – while completing the online application, you will have the option to select to have your Letters of Recommendation submitted online. If you make that selection, the online application software will email each of your recommenders regarding your request for them to submit their Letter of Recommendation online. Recommenders may then submit letters online using standard word processing software. When your recommender submits his or her Letter of Recommendation online, the letter will be transmitted electronically for the Department of Civil and Environmental Engineering to access.

b. **BY PAPER** – Letters of Recommendation submitted through regular or expedited mail service should be printed on official letterhead and contain the original signature of your recommenders. Your name and the name of the program to which you are applying should be included in each letter. Be sure to have your recommenders sign the sealed envelope across the envelope seal. Submit your unopened Letters of Recommendation along with your other Supporting Materials to: Northwestern University / ATTN -- Academic Coordinator / Dept of Civil & Environmental Engineering / 2145 N. Sheridan Road - Tech A236 / Evanston, IL 60208-3109.

3. **Statement of Purpose**

Your Statement of Purpose is your chance to be forthright and specific about the direction of your strong interests! Do you find your future shaping up for the exciting engineering job market of today, or is your passion for the academic world of research and teaching? Be as clear as possible about your qualifications and research interests. And last but not least, include why you have specific interest in NU’s Civil and Environmental Engineering Department and/or a particular CEE professor’s work.

Your Statement of Purpose may be submitted electronically as part of the online application. Or, if you choose, you can submit your Statement of Purpose in your Supporting Materials packet. Be sure to include your Full Name, Date of Birth and the program to which you are applying under the title of “Statement of Purpose.”

4. **Graduate Record Examination (GRE) Scores**

*To be considered official ...*

- Official GRE exams must be taken LESS than 5 years before Quarter of Entry, Fall 2008.

- GRE scores must be received directly from the Educational Testing Service (ETS) by using Northwestern University’s Institution Code 1565 in your request to ETS for electronic score transmission. If your scores are not transmitted by way of this code, Northwestern University will not receive them. Notarized score reports cannot be accepted as official.

*However, it is to your advantage ... *

- to include a paper copy of your GRE score report in your Supporting Materials packet. The CEE Department can use your paper copy provisionally until your official scores are transmitted by ETS.
For your information, we include below the range of Lowest and Highest scores of the Fall 2007 incoming class to give you an idea of the score ranges that Faculty will seek when evaluating a prospective student.

- GRE Verbal scores ranged from 630-800
- GRE Quantitative scores ranged from 700-800
- GRE Analytical (previous scoring) scores ranged from 720-800
- GRE Analytical writing ranged from 4.5-6.0
- Grade Point Average: 3.50 - 4.00

5. International Applicants: Certification of Proficiency in English

Much of your success in graduate study in the United States will rest on your ability to understand, read, write and speak English. If English is not your native language or has not been your Language of Instruction, Certification of English Proficiency will be required.

International Master of Science (MS) applicants

All international applicants for the MS—who are whose native language is not English or whose undergraduate degree is from an accredited four-year institution where the Language of Instruction is English—may use 1 of these 2 methods to Certify your Proficiency in English.

- **Method 1.** Submit a TOEFL score report (Test of English as a Foreign Language). Official TOEFL exams must be taken LESS than 2 years before Quarter of Entry, Fall 2008. An applicant must score 600 or higher on the paper-based TOEFL exam, or 250 or higher on the computer-based TOEFL exam, or 100 or higher on the internet-based TOEFL exam.

TOEFL scores must be received directly from the Educational Testing Service (ETS) by using Northwestern University’s Institution Code 1565 and Department Code 01 in your request to ETS for electronic score transmission. If your scores are not transmitted by way of this code, The Graduate School at Northwestern University will not receive them. IBT test takers should, when prompted, request that their scores be sent to the graduate office (versus undergraduate) and then select the program name that most closely matches their program of interest. If no match is available, the test taker may choose option 99. Notarized score reports cannot be accepted as official.

However, it is to your advantage to include a paper copy of your TOEFL score report in your Supporting Materials packet. The CEE Department can use your paper copy provisionally until your official scores are transmitted by ETS.

- **Method 2.** If you provide official transcripts showing that you have earned an undergraduate degree (by Fall 2008) from an accredited four-year institution, where the Language of Instruction is English -- then your TOEFL requirement can be waived.

International PhD or MS/PhD applicants

All international applicants for the MS/PhD or PhD—whose native language is not English or whose undergraduate degree is not from an accredited four-year institution where the Language of Instruction is English—may use 1 of these 2 methods to Certify your Proficiency in English.

- **Method 1.** Submit a TOEFL score report (Test of English as a Foreign Language). Official TOEFL exams must be taken LESS than 2 years before Quarter of Entry, Fall 2008. An applicant must score 600 or higher on the paper-based TOEFL exam, or 250 or higher on the computer-based TOEFL exam, or 100 or higher on the internet-based TOEFL exam.
TOEFL scores must be received directly from the Educational Testing Service (ETS) by using Northwestern University’s Institution Code 1565 and Department Code 01 in your request to ETS for electronic score transmission. If your scores are not transmitted by way of this code, Northwestern University will not receive them. Notarized score reports cannot be accepted as official.

However, it is to your advantage to include a paper copy of your TOEFL score report in your Supporting Materials packet. The CEE Department can use your paper copy provisionally until your official scores are transmitted by ETS.

**Method 2.** If you provide official transcripts showing that you have earned an MS degree (by Fall 2008) from an accredited four-year institution, where the Language of Instruction is English -- then your TOEFL requirement can be waived.

**PhD and MS/PhD applicants, please take note:** Even if your TOEFL requirement is waived because you have an MS degree from an accredited four-year institution where the Language of Instruction is English, you are still required to submit an Internet-based TOEFL (iBT) Speaking Section score of 26 or better in order to comply with the spoken English requirement for a Teaching Assistantship appointment.

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**Application Instructions**

Applications and Supporting Materials are due in the CEE Department December 31, 2007.

Additional information on admission procedures and requirements may be found at The Graduate School web site, [http://www.tgs.northwestern.edu/admission/](http://www.tgs.northwestern.edu/admission/). Answers to Frequently Asked Questions may be found at [http://www.tgs.northwestern.edu/admission/faq/](http://www.tgs.northwestern.edu/admission/faq/).

To apply online, please go to the CEE Department Pre-Application form which leads you to the Official Online Application at The Graduate School. Follow these step-by-step instructions. Go to [www.civil.northwestern.edu](http://www.civil.northwestern.edu) and click "Graduate Programs," scroll to and click "Apply." You will be taken to the CEE Department Pre-Application Form. You do not need to download and print the form, simply input your information and click "Submit."

After submitting the Pre-Application Form at the CEE website, click "The Northwestern Graduate School Online Application." You will be taken to the online application website. Click "Create Account" to begin. You are free to add or change information in your application at any time until you feel that the application is ready for submission. The Application Fee is payable by credit card during the online application process.

*It is the policy of Northwestern University not to discriminate against any individual on the basis of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or veteran status in matters of admissions, employment, housing or services, or in the educational programs or activities that it operates, in accordance with civil rights legislation. Any alleged violations of this policy or question regarding the law with respect to nondiscrimination should be directed to Lawrence Dumas, provost, Rebecca Crown Center, Evanston, Illinois 60201, phone (847) 491- 5117; Northwestern University reserves the right to change without notice any statement in this brochure concerning but not limited to, rules, policies, tuition, fees, curricula and courses.*
All Applicants begin study in the Fall Quarter (approximately September 20th) of a given academic year. Sequentially-offered courses start in the Fall of each academic year, and it is advantageous to be present for the beginning of the sequence. In addition, all financial support packages begin in the Fall Quarter. As such, there are no Winter or Spring admissions.

PhD or MS/PhD Applicants seeking financial support need to have their completed Online Application and Application Fee electronically submitted by December 31, 2007. In addition, all of your Supporting Materials need to be received by the CEE Department by December 31, 2007. If you submit them to The Graduate School, it will cause undue delay in entering your application into Faculty Review.

MS Applicants Your completed Online Application and Application Fee both need to be submitted by December 31, 2007 as well. Faculty seek to review their entire new cohort of MS and PhD students as a group, so that they can plan time, courses, and resources for a good mix of MS and PhD students. Please note that MS students are not currently funded by Northwestern. Therefore, we strongly encourage our MS applicants to view their MS studies as a personal investment toward a very satisfying and lucrative future, and, thus, seek funding through loans, part-time work opportunities, and fellowships targeted to the MS student. We continuously have many self-supported MS students who count their financial cost toward the MS as a vital investment in their marketability for the engineering job market!

For many fellowship opportunities and information regarding student loans, visit the NU Office of Fellowships at www.northwestern.edu/fellowships and the NU Graduate Schools student loans information page at www.tgs.northwestern.edu/financialaid/studentloans. Estimated Expenses are for Fall 2007; 2008 figures are not available yet: Tuition: $33,545 (acad yr); Room/board (acad yr): $14,250; Books: $1,025; NU Health Insurance: $1,896 minus Graduate School subsidy of $948 = $948 (students payments may paid in installments).
... Types of Financial Support

The Department of Civil and Environmental Engineering offers a substantial number of academic quarters of fellowship and assistantship support for outstanding, 1st year PhD or MS/PhD students. The table below shows an example of a typical year’s financial aid offers:

<table>
<thead>
<tr>
<th>Type of Support</th>
<th># of Quarters Offered</th>
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<tbody>
<tr>
<td>Cabell Fellowships</td>
<td>6</td>
</tr>
<tr>
<td>Murphy Fellowships</td>
<td>38</td>
</tr>
<tr>
<td>ITI Fellowships</td>
<td>6</td>
</tr>
<tr>
<td>Minority Fellowships</td>
<td>6</td>
</tr>
<tr>
<td>Research Assistantships</td>
<td>20</td>
</tr>
<tr>
<td>Teaching Assistantships</td>
<td>23</td>
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- **Royal E. Cabell Fellowships**: A highly competitive fellowship offered to the most qualified incoming United States citizens and permanent residents pursuing the PhD or MS/PhD in the Robert R. McCormick School of Engineering and Applied Science (McC). Minimum requirements for nomination are as follows: Cumulative Grade Point Average (GPA) of at least 3.70, Graduate Record Exam (GRE) verbal score of at least 600; GRE-Quantitative score of at least 760, GRE-Analytical Writing score of at least 5.5. Tuition is paid by a University Scholarship, and a $17,478 stipend (Fall 2007 figures; Fall 2008 not yet available) is paid in monthly installments over the 9-month academic year.

- **Walter P. Murphy Fellowships**: A prestigious reward for outstanding United States citizens, permanent residents, or international engineering engineering students who are targeting PhD or MS/PhD studies at McCormick. Top GPA and GRE scores are required. Awards are allocated by McCormick and appointed by the department’s fellowship committee. Tuition is paid by a University Scholarship, and a $14,715 stipend (Fall 2007 figures; Fall 2008 not yet available) is paid in monthly installments over the 9-month academic year.

- **Infrastructure Technology Institute (ITI) Fellowship**: A new fellowship program for US and international PhD or MS/PhD applicants who are interested in developing new technologies for constructing and maintaining the infrastructure. These fellowships lead to exciting participation in Northwestern University’s ITI research programs (http://www.iti.northwestern.edu/).

- **Research Assistantships**: Research Assistantships are funded by sponsored research projects – Tuition is paid by the University, and a $14,715 stipend (Fall 2007 figures; Fall 2008 not yet available) paid over the 9-month academic year. Selection as a Research Assistant (RA) is based on academic record, GRE scores, and the ability to contribute to a specific research project. Normally, an RA appointment requires at least a 20-hour per week commitment to the research project. RA positions are open to U.S. and international PhD or MS/PhD applicants.
• **Teaching Assistantships (sometimes called Graduate Assistantships):** Teaching Assistantship selection is based on academic records and GRE scores. Graduate Assistants (GA/TA) commit 20 hours per week to teaching activities such as lecturing, holding review sessions, grading papers, and meeting with students. GA/TA positions are open to US and international students – Tuition is paid by a University Scholarship, and a $1,686 (Fall 2007 figure; 2008 is not available yet) per month stipend is paid during the quarter in which the student is appointed as a GA/TA.

• **Please note:** International MS/PhD and PhD applicants (whose native language is not English or whose BS or MS degree is not from an accredited institution where the Language of Instruction is English) are required to show a proven ability to communicate effectively in English by submitting a Speaking Score of 26 or above on the Internet-based TOEFL or a score of 50 on the SPEAK Test. See section on “Admission Requirements and Supporting Materials.”

**In summary ... to be eligible for financial assistance, ...** PhD and MS/PhD applicants must: 1) Apply for the Fall Quarter—there are no admissions or financial support packages available for Winter or Spring Quarter of Entry; 2) Have appropriate GRE scores; and 3) have a completed Online Application (you will indicate on your Application your Request for Financial Aid) and Supporting Materials at the Department of Civil and Environmental Engineering by December 31, 2007.

Northwestern University focuses its Fellowship, Graduate Teaching Assistantship, and Research Assistantship financial support to U.S. citizens, permanent residents, and international applicants whose degree target is the PhD or MS/PhD. University policy guidance states that departments must provide evidence of financial support for a PhD or MS/PhD applicant before that student can be admitted.

For financial aid regulations in The Graduate School, visit the The Graduate School website at [http://www.tgs.northwestern.edu/financialaid/](http://www.tgs.northwestern.edu/financialaid/)

**REMINDER:** All Supporting Materials must arrive in the CEE Department by December 31, 2007.

You may direct your supporting materials through US Mail or expedited mail to: Northwestern University / Dept of Civil & Environmental Engineering / ATTN: Academic Coordinator / 2145 N. Sheridan Road #A236 / Evanston, IL 60208-3109.

Direct any questions to [civil-info@northwestern.edu](mailto:civil-info@northwestern.edu) and we will respond as quickly as possible, so that you may have a successful Application/Admission experience!