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This handbook describes the policies regarding the graduate students in the Department of Civil Engineering and Geological Sciences. Should a contradiction be found between this guide and the Graduate School's Bulletin, the Bulletin takes precedence. The students are required to obtain a copy of the Bulletin and become familiar with its requirements and policies.

1.0 ADMISSION AND GRADUATE STANDING

1.1 Admission Requirements

Candidates for advanced degrees in the Department of Civil Engineering and Geological Sciences must be admitted to the Graduate School of the University. Requirements for admission include an outstanding record in an appropriate undergraduate program and a bachelor's degree. Admission to study is not restricted to civil engineering or geology undergraduate majors. Applications are also encouraged from students with superior records in other fields of engineering and science who wish to participate in the programs of study offered by the Department of Civil Engineering and Geological Sciences.

An applicant for admission to a degree program is required to submit one completed Graduate School application form; official transcripts of all previous academic credits from the colleges and universities at which they were earned; scores in the General Test of the Graduate Record Examination; and three completed recommendation forms from teachers well suited to attest to the applicant's qualifications for graduate study. International students are also required to verify competency in English by submitting their TOEFL (Test of English as a Foreign Language) scores with their applications. A score of 600 or better is expected on the TOEFL from a successful applicant. International students are also strongly encouraged to submit scores in an appropriate Subject Test of the Graduate Record Examination. A personal interview or visit with the Department of Civil Engineering and Geological Sciences is often helpful to the admission process. Admission decisions are based on the overall quality of the credentials of the applicant as well as the applicant's potential to contribute to and benefit from the research programs within the Department.

The University of Notre Dame does not discriminate on the basis of religion, race, color, sex, national and ethnic origin, or physical handicap in its admission process and in administration of its educational policies and financial aid program.

1.2 Graduate Standing

Once admitted, all degree and non-degree graduate students must enroll before each semester at the times and locations announced by the University Registrar. Enrollment dates are published in the Graduate School Calendar (see Appendix See Also: ACADEMIC CALENDAR). Any admitted student who fails to enroll for one semester or more must apply for readmission upon return. (See Also: Continuous Enrollment.) A late charge of \$25 will be assessed to any student enrolling after the date set forth on the Graduate School Calendar. All degree-seeking students are expected to maintain full-time status and to devote full time to graduate study. A non-degree student may hold a job, on or off campus, without the express permission of the Department and the Graduate School.

At registration, the graduate student enrolls in a program of studies developed in collaboration with his or her advisor and the Director of Graduate Studies. The student then reports to the Office of Student Accounts to set up his or her account.

1.2.1 Continuous Enrollment

All students must enroll each semester in the academic year to maintain student status. Continuous enrollment is met normally by 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 Also: Leave of Absence .) Degree students who have completed the credit hour 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. 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 for one semester or more must apply for readmission upon return. Continuing degree-seeking students (i.e., degree 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 registering and enrolling for academic credit in the Summer Session.

1.2.2 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 detailed in the next section 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.

1.2.3 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 in the Office of Residence Life, 315 Main Building. For information on refunds, refer to "Tuition and Expenses" of the Graduate Student Bulletin. 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.

1.3 ACADEMIC REGULATIONS

1.3.1 Full-time and Part-time Students

A full-time student is one who (1) registers for nine or more credit hours of required course work per semester in the academic year or six or more credit hours in the Summer Session or (2) has completed the credit hour requirements for a degree and is registered for a minimum of one credit hour. This second category includes both resident and nonresident students. (See Also: Continuous Enrollment.) A part-time student is any enrolled graduate student who does not fall within either of the preceding categories. For loan purposes, a half-time student is a part-time student who registers for at least six credit hours per semester in the academic year or three credit hours in the Summer Session.

1.3.2 Maximal Registration

During the academic year, a graduate student may not register for more than 12 credit hours of graduate courses, i.e., 500-, 600- and 700-level courses, each semester. An additional three credit hours of 400-level courses may be taken if authorized by the Department Chair and approved by the Graduate School. In the Summer Session, a graduate student may not register for more than 10 credit hours.

1.3.3 Changes in Class Schedules

A student may add courses only during the first seven class days of the semester. Students may add courses after this time only on recommendation of the Department and with approval of the Graduate School. A student may drop courses during the first seven class days of the semester. To drop a course after this period and up to the mid-semester point (see the Graduate School Calendar in Appendix F: See Also: ACADEMIC CALENDAR, for the exact date), a student must have the approval of the chair of the department offering the course, the student's adviser and the Graduate School. A course may be dropped after the mid-semester point only in cases of serious physical or mental illness. Courses dropped after this date 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 mid-semester point only in cases of serious physical or mental illness.

1.3.4 Course Numbers

No graduate credit is allowed for courses below the 400 level. The advanced undergraduate courses numbered 400 through 499 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 400-level courses to meet their degree requirements. Courses numbered 500 through 599 are first-level graduate courses into which qualified advanced undergraduates may be admitted with the permission of the instructor and the approval of the chair. Courses numbered 600 and above are advanced graduate courses open only to those who have completed the undergraduate and graduate prerequisites.

1.3.5 Graduate 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	.
C-	0	.
D	0	.
F	0	.
I	0	Until Incomplete is removed
NR	None	No Grade reported
P	None	Pass
S	None	Satisfactory
U	None	Unsatisfactory
V	None	Auditor (graduate students only)
W	None	Withdrew

Quality point values are used to compute the student's grade point average (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. If a grade of "C-" or "D" is given to a graduate student for a course taken in any department or college in the University, the grade will be considered equivalent to an "F." A student receives the temporary grade of "I" when, for acceptable reasons, he or she has not completed the requirements for a 500 or higher level graduate course within the semester or Summer Session. No grade of "I" can be given for courses below the 500 level or to graduating students in the final semester or final Summer Session. 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" 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. Should the student not complete the course work as required, the "I" remains on the academic record and is computed in the G.P.A. as equivalent to an "F." 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 financial support and enrollment.

The grade of "P" or pass is awarded only on foreign language reading examinations, comprehensive examinations, candidacy examinations and dissertation defense examinations. The grades of "S" and "U" are used in courses without semester credit hours, as well as in research courses, departmental seminars, colloquia, workshops, directed studies, field education and skill courses. These courses, if given the grade of "S," do figure in a student's earned semester credit-hour 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 credit-hour total, nor will it figure in the computation of the G.P.A. The grade of "V" has neither quality-point nor credit-hour values. It is the only grade available to the registered auditor who requests at the beginning of the semester that it be made part of his or her permanent record and who attends the course throughout the entire semester. The grade of "V" cannot be changed to a credit-earning grade. The grade of "W" is given for a course that a student is allowed to drop after the mid-semester point.

1.3.6 Examinations

Unexcused absence from a scheduled final examination results in an "F." An absence excused in advance results in an "I" (incomplete).

1.3.7 Transfer Credits

The Department can 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 Chair 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 at least one semester in a Notre Dame graduate degree 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.

1.3.8 Academic Good Standing

Continuation in and graduation from a graduate degree program requires maintenance of at least a 3.0 (B) cumulative G.P.A. A student whose semester GPA drops below 3.0 for two consecutive semesters is subject to dismissal. A student with less than a 2.5 GPA in any one semester will not be permitted to continue in the graduate school in any status. A student who has completed 18 credit hours or more with less than a 3.0 cumulative average will not be eligible for initiation or continuation of financial support.

An adequate G.P.A. is only one factor taken into consideration in determining a student's qualifications for an advanced degree. Students are also expected to participate in Departmental seminars and other academic activities.

The Department and the Graduate School annually evaluate each graduate student's overall performance on the basis of these criteria. Each student is required to submit a Graduate Student Progress Report (see Appendix F) during the fall semester every year. A student must be in academic good standing to be eligible for new or continued financial support. Students have a maximum of 8 years of academic and financial eligibility. All funding is cut off after those eight years.

1.3.9 Foreign Language Requirement

A foreign language reading proficiency is not required to obtain a graduate degree in the Department.

1.3.10 Residency

MASTER'S DEGREE

The normal full-time residency requirement for the master's programs is two consecutive semesters of full-time work or four Summer Sessions. The normal full-time registration in the Summer Session is six credit hours. The maximum registration in the Summer Session is 10 credit hours. A part-time student may register for less than the normal number of credit hours per semester, but at least one semester or one Summer Session of formal course work must consist of a minimum of six credit hours to satisfy the residency requirement for the master's program.

Ph.D. DEGREE

Six consecutive semesters of full-time study or the credit-hour equivalent in consecutive full-time academic year semesters and Summer Sessions of six credit hours each, constitute the normal full-time residency requirement for the doctoral degree.

A student whose master's degree program completed at another institution has been accepted for 24 credit hours in transfer fulfills the residency requirement by completing four successive semesters of full-time study or the credit-hour equivalent in consecutive full-time academic year semesters and Summer Sessions of six credit hours each.

A part-time doctoral student fulfills the residency requirement by completing two successive semesters of full-time study. The remainder of the 72-credit hour requirement may be completed in part-time enrollment.

1.4 Responsibilities, Appointments, and Support

The educational mission of the University of Notre Dame calls for a growth in knowledge on the part of faculty, graduate students, and undergraduate students. It is the philosophy of the Department of Civil Engineering and Geological Sciences that this growth is best encouraged by interaction among these individuals. For the graduate student this means that contact with faculty is encouraged in the classroom setting, the more personal research setting, and through interchange of information through channels of varying degrees of formality. Graduate students are also expected to assist in the undergraduate education process as graders, by holding problem sessions, running laboratories, and assisting in courses. This responsibility is motivated by the fact that the best way to learn some body of knowledge is to teach it. Students should be aware that this responsibility exists regardless of the method of financing one's educational costs. The current model for assisting with the Department's teaching requirement is: (a) first year student - eight hours per week during both semesters; (b) second year students - four hours per week during both semesters; (c) third year students - four hours per week during one semester; (d) more advanced students - no further requirement.

1.4.1 Financial Support

During their first year, all incoming, full-time, degree-seeking graduate students receive full financial support from the Department, comprised of a combination of a tuition scholarship and a competitive stipend. Students will be informed of the financial support provided by the Department by a letter. This award is a Graduate Assistantship and requires the student to successfully perform in his/her coursework and to participate in teaching and research. Continuation of funding with a similar level of stipend and full tuition scholarship is contingent upon good academic standing and satisfactory progress towards the degree.

Students are also encouraged to seek support for their studies by applying to agencies and foundations that provide fellowship support. Application for such awards is favorably viewed by the Department whether or not the award is received. Receipt of an external award is a valuable addition to a student's resume as well as a vehicle of ensuring support.

A student may forfeit eligibility for aid if his/her GPA falls below 3.0. (See Also: Academic Good Standing). A student should not necessarily expect that the level of support will remain constant or increase with inflation for the duration of enrollment. However, the Department tries to offer a competitive stipend to students receiving support and making satisfactory progress toward their degree. A timetable for progression towards the degree is presented subsequently. Adherence to this timetable is one measure of satisfactory progress.

Students are usually supported on money obtained from research grants as well as supplemental money from the Graduate School. Any student enrolled in the Department has a responsibility to contribute to the research program of his/her advisor and to the teaching activities of the Department as teaching assistants.

This responsibility exists regardless of the source of a student's funding of his/her graduate studies. A student should view any support as an assistance in pursuing an advanced degree.

By necessity, any vacation plans must be flexible and depend on cooperation between student and advisor. Research is an important aspect of the degree-earning process. Pursuit of an advanced degree implies irregular hours, and thus scheduling of vacation times and duration must be flexible. Vacation periods do not necessarily coincide with the academic calendar. The only operative policy for vacations relies on understanding between advisor and student. A student should make no vacation plans without the approval of his/her advisor. Typically this is achieved with reasonable ease but on occasion may require the assistance of the Director of Graduate Studies.

Assistants and fellows who receive a full stipend should not be employed elsewhere on or off campus. A graduate student cannot receive more than eight years of financial support from the Graduate School or from funds allotted by the Graduate School to the Department.

1.4.2 Compliance with Federal Aid Regulations

Recipients of federal financial aid must comply with the standards of progress set by their respective departments for their particular programs of study. The director of financial aid will notify students in writing when failure to maintain progress will result in the loss of financial aid. Appeals indicating mitigating circumstances must be made in writing to the director of financial aid.

2.0 DEGREES

2.1 Master's Degree

Outlined subsequently are general guidelines as to the procedure which a graduate student will typically follow in pursuing the master's degree and some specific measures of satisfactory performance. Specifics of the procedures, when not stated in this manual or in the graduate bulletin published by the Graduate School, will be determined through discussion of the student with his or her advisor.

2.1.1 Educational Philosophy

At the graduate level, the Department of Civil Engineering and Geological Sciences offers the Doctor of Philosophy (Ph.D.) as well as three masters degrees - Master of Science in Civil Engineering (MSCE), Master of Science in Environmental Engineering (MSEnvE) and Master of Science in Geological Sciences.

The MSCE and MSEnvE degrees are available to those students holding an undergraduate engineering degree or who have been, prior to beginning their graduate programs, accepted as qualifying to take the FE exam by an engineering licensing board. The MSEnvE degree is intended primarily for those students studying environmental engineering and the MSCE degree is primarily intended for those students studying civil engineering.

The MS in Geological Sciences degree is available to those students holding an undergraduate degree in geological sciences or who have or will have taken a minimum of three 400 or above level courses in the area of geological sciences. This degree is primarily intended for those students studying geological sciences.

The master's degree requires 30 credits beyond the bachelor's degree, including 16 to 24 credits of formal course work, with the remaining credits devoted to research. The flexibility in the distribution between courses and research is intended to accommodate the variety of educational backgrounds of students entering

the Department. The master's degree also requires that a student either (a) complete a thesis which demonstrates originality and the ability to perform research or (b) pass the qualifying exam for the Ph.D. and publish an original research contribution in an archival journal. Another essential component of the master's degree is that the student be able to communicate effectively on technical matters, both with peers and with those who have a lesser understanding of a topic.

In summary, the master's degree awarded within the Department of Civil Engineering and Geological Sciences should signify that a recipient has 1) obtained mastery of a topical area through formal courses beyond that obtained at the undergraduate level; 2) demonstrated the ability to formulate original questions and answer those questions through research; and 3) developed his or her communication skills in order to interact with peers in an informal setting, to make effective technical presentations, and to participate effectively in the critique process of such presentations. Deficiencies in any one of these three areas must be remedied before a degree is awarded.

2.1.2 Advisor

Upon arrival at Notre Dame, each student is assigned an academic advisor who has the responsibility to help the student with course selection and acclimatization to the Department. These assignments are based on perceived research compatibility and the funding distribution within the Department. Research advisors are chosen from the regular teaching and research faculty of the Department. There may be one co-advisor. A co-advisor may be chosen from the faculty outside the Department, but such arrangements must be approved by the Director of Graduate Studies and the Graduate School.

The first step in selecting a research advisor is for the student to become familiar with the faculty and their research activities. Because we have an interdisciplinary mix of both faculty and students, you are required to arrange to meet during the first three weeks of the semester with individual faculty members in the Department. The average length of these meetings should be about 15 minutes, but will vary depending on the match between the student/faculty interests.

After meeting with all of the faculty, each student should provide the Director of Graduate Studies with a rank ordering of your top three choices for advisor by the beginning of the fifth week of the semester in which they begin their study. Shortly after student input has been received, the Director of Graduate Studies, in consultation with the Department Chair, will assign your research advisor. The assignments will be made based on information received from the students and faculty, research commitments and available resources. The Director of Graduate Studies must be kept informed of difficulties between a student and his/her advisor, as well as shifts in advisor.

2.1.3 Academic Requirements

A student seeking the master's degree must register for and complete at least 30 semester credit hours with grades of C or better and a cumulative GPA of at least 3.0. No graduate credit is allowed for courses below the 400 level. The advanced undergraduate courses numbered 400 through 499 may, with the approval of the Director of Graduate Studies and the Graduate School, be taken to satisfy up to 10 hours of graduate credit requirements. Courses numbered 500 through 599 are first-level graduate courses open to particularly advanced undergraduates as well as graduate students. Courses numbered 600 and above are the most advanced graduate courses and generally have undergraduate and graduate prerequisites. The Master's program normally consists of 16 to 24 credit hours earned by course work with the balance earned through thesis research. Thus research credits may total from 6 to 14 credit hours.

The offerings of the Department of Civil Engineering and Geological Sciences, other engineering departments, the Department of Mathematics, and Science departments typically comprise the pool of courses from which students select their program of study. This program will vary from student to student depending on background and research interest. The research advisor and the Director of Graduate Studies

must approve a student's slate of courses each semester. Master's students in each of their first two semesters are expected to pass at least twelve credits with no grade lower than C and to maintain a GPA of 3.0 or higher.

Master's candidates are expected to complete all degree requirements except the thesis defense and final approval of the thesis within three semesters of their enrollment. Master's candidates will not be eligible for support beyond their third semester of study unless exceptional circumstances exist. Any allegation of exceptional circumstances must be brought to a faculty meeting for formal consideration. If the faculty recommends continued support and the Director of Graduate Studies concurs, then eligibility beyond the third semester is allowed. The typical course load of a Master's candidate is 12 to 14 credits each of the first two semesters with the remainder of the 30 credits being earned in the summer and third semester.

Although both research and non-research options are currently available to students seeking the master's degree as their final Notre Dame degree, the research option is the preferred and normal route. The non-research program is allowed only in exceptional circumstances. The research option requires that six to fourteen of the thirty semester hours for the master's degree be satisfied by completing and defending a thesis as course CE 599R. In the non-research option, three of the thirty credit hours of course work must be satisfied by the special problems course CE 598R. A student may be allowed to proceed in the non-research option only by petition to the Departmental faculty through the Director of Graduate Studies. This petition should include the reason for the non-research option, the name of the advisor, and the topic for the special problem paper. The petition will be brought to the next regularly scheduled CE/GEOS faculty meeting for consideration. If two-thirds or more of the faculty in attendance recommend that the reasons for the non-research option are compelling, a student may be allowed to follow the non-research option.

2.1.4 Communication

The ability to communicate effectively is considered to be an essential skill of a master's degree holder from the Department of Civil Engineering and Geological Sciences. This skill is developed through interaction with students as a teaching assistant, discussions with fellow graduate students and faculty, and through participation as either presenter or questioner in seminars. To facilitate the development of communication skills, all students are required to participate in the Department's educational mission by serving as teaching assistants. In this role, the student transfers knowledge to those striving to learn and improves his or her own understanding in a relevant technical area. Master's students are also encouraged to present their research findings through private discussions with faculty and their fellow graduate students and in an announced seminar open to faculty and students alike. These seminars should be viewed as opportunities to improve organizational and communication skills in a formal setting. Additionally, these seminars should help the speaker become accustomed to questioning and the listeners become skillful in discerning and probing the important points of a presentation. These seminars, if they are to be true learning experiences, require that the speaker and audience interact significantly in constructive discussion in the spirit of education.

2.1.5 Admission to Candidacy

Students must complete an application for master's degree candidacy as found in Appendix See Also: MASTER'S FORMS. To qualify for admission to candidacy a student must have been enrolled in the program without interruption and maintained a minimum cumulative GPA of 3.0 in approved course work. Additionally, a student in the research option must demonstrate a 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 Director of Graduate Studies. The applicable deadline is published in the Graduate School Calendar (see Appendix See Also: ACADEMIC CALENDAR).

2.1.6 Thesis Proposal

Students should meet with their research advisor and two regular teaching and research faculty members from the Department at the beginning of their second semester of study to discuss their course selection and proposed area of study. This committee can meet on other occasions as needed, to oversee the student's progress towards graduation.

The master's thesis proposal should be submitted to the student's advisor and the Director of Graduate Studies prior to the end of the second semester of study. The proposal should provide sufficient detail so that someone familiar with the material could assess the potential for success in the topic and the student's preparation for conducting the proposed research. After consultation with the advisor, the Director of Graduate Studies appoints one reader in addition to the advisor to review the proposal. The proposal must be accepted by both the reader and the advisor or else modified and resubmitted.

2.1.7 Thesis Requirements

The requirements for acceptance of the master's thesis are as follows. The thesis should follow the guidelines in the Graduate School's Guide for the Writing of Theses and Dissertations available at the Graduate School office. The thesis advisor indicates his or her final approval of the thesis and its readiness for the readers by signing the thesis. Copies of the thesis are distributed to the two official readers. Readers are appointed from among the regular teaching and research faculty of the Department. The appointment of a reader from outside the Department must have the Graduate School's prior approval. The thesis advisor or co-advisors may not be counted as the official readers. The readers should be selected on the basis of familiarity with the material and ability to provide critical reading. It is advisable to involve readers in the thesis topic as early as possible.

Timely reading of the thesis by the readers is expected, as is timely response by the student to the comments and requests of the readers. The thesis, in updated form, must be available to all students and faculty for two weeks prior to the Comprehensive Master's Examination. This thesis must be signed by the student's advisor and deemed, by the readers, to be acceptable for defense (though not necessarily unconditionally approved) prior to the student's Comprehensive Master's Examination. The process of approval must be driven by the quality of the work and not related to deadlines which may exist in regard to awarding of a degree, job responsibilities, travel plans, etc. In the spirit of quality assurance, all faculty and students are encouraged to provide comments on the thesis to the author and to participate, as appropriate, in the Examination. The research requirement for the degree is satisfied when the readers give their unconditional approval to the thesis.

After the thesis has been accepted by the readers and successfully defended, the candidate should deliver to the Graduate School Office two typed copies signed by the advisor. There it will be verified for compliance with the style manual. The candidate then delivers the verified copies and the Graduate School approval form to the Hesburgh Library, where he or she pays the binding cost. The candidate must also provide one hard-bound copy of the thesis to the Department.

Should a student and advisor decide to microfilm a thesis, information concerning the University Microfilms International Master's Publishing Program may be obtained from the Graduate School office.

An alternative procedure for satisfying the master's degree research requirement is available to students studying for the Ph.D. as the final degree. A student who has completed the course requirement for the master's degree, passed the university candidacy examination for the doctorate, and been first or second author on a research manuscript published in a refereed technical journal may request a non-research master's degree (i.e. the degree is designated as "non-research" on the student's transcript because no thesis is submitted). The publication must be based on work performed while the student has been a graduate degree candidate at Notre Dame. The candidate will be required to present his or her research paper in a format similar to the Comprehensive Master's Examination and subject to the same standards. Upon sustaining this exam, a master's degree will be awarded. In the event of failure, the student will forfeit

eligibility for a master's degree without a thesis. This procedure must be completed at least one month prior to the Defense of Dissertation.

2.1.8 Comprehensive Master's Examination

In the Comprehensive Master's Examination, the student must demonstrate that he or she has acquired sufficient skills in this area. A student who has performed satisfactorily in course work and research but does not make a professional presentation cannot sustain the Examination. In such a case, awarding of a degree will be delayed or denied. Satisfactory communication requires that a degree candidate be able to a) present a well-organized and concise account of his or her research, b) defend the thesis or research paper and the presentation when subjected to questioning, and c) demonstrate mastery in technical matters which warrants official recognition. Failure, as determined by the examining committee (composed of the student's research advisor and two research document readers), in any of these three areas is failure of the Comprehensive Master's Examination.

In the Department of Civil Engineering and Geological Sciences, the first part of the Comprehensive Master's Examination is a 20 minute presentation of key aspects of the candidate's thesis. This is considered to be a formal technical presentation. The candidate should be appropriately attired for such an event; prepared with neat, quality overheads or slides; ready to begin when introduced; concise and to the point; and professional in demeanor. If the candidate fails to make a satisfactory presentation, the formal examination may be immediately terminated, the question portion of the exam suspended, and the candidate determined to have failed the Comprehensive Examination. Any member of the examining committee or of the faculty in attendance at the presentation may demand that the committee vote on terminating the exam at the conclusion of the presentation. In the event of a majority vote to terminate the examination at this point, the candidate will have failed.

The subsequent portion of the examination consists of questioning by those in attendance at the exam. All present are encouraged to participate in serious dialogue with the speaker concerning his or her work. The first questioning is done by those not on the examining committee. Subsequently, the committee members will examine the candidate in depth based on the presentation, the thesis or paper, and the background needed for the research reported on.

At the conclusion of the examination, the committee, along with other faculty members who wish to participate, discusses the candidate's performance. The committee members vote pass/fail on the presentation, the candidate's ability to respond to questioning, and on the student's mastery of the subject. The exam is passed if the committee vote, by majority, is "pass" in each of these three areas. Failure in any of the areas results in automatic forfeiture of degree eligibility, unless the Department recommends a retake. If a retake is recommended, the student must retake the entire examination, which must be completed by the end of the following semester. The Graduate School allows only one retake of the master's examination.

2.1.9 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.

2.2 Doctor of Philosophy (Ph.D.)

The Ph.D. awarded within the Department of Civil Engineering and Geological Sciences is the highest degree which is conferred by Notre Dame. As such, this degree should signify that a recipient has 1) obtained mastery of a topical area through formal courses and/or independent readings; 2) demonstrated the ability to formulate original questions and complete a research program to address those questions (resulting

in the student's dissertation); and 3) developed his or her communication skills in order to interact with peers in both formal and informal settings, to make effective technical presentations, and to participate effectively in the critique process of such presentations. Deficiencies in any one of the areas outlined above must be remedied before a degree is awarded.

Outlined in the subsequent sections are general guidelines as to the procedure which a graduate student will typically follow in pursuing the Ph.D. and some specific measures of satisfactory performance. Specifics of the procedures, when not stated in this manual or in the graduate bulletin published by the Graduate School, will be determined through discussion of the student with his or her advisor.

2.2.1 Research Advisor

Fundamental to the successful completion of the Ph.D. is the relationship of the student to the research advisor. Establishing a student/advisor relationship will be based on common research interests, a desire on the part of the advisor to lead the student in the pursuit of the Ph.D., a desire on the part of the student to work with the advisor, and development of research support from the advisor or the Department. As such, the research advisor is often not identified prior to the first semester of class work.

Upon arrival at Notre Dame, each student is assigned an academic advisor who has responsibility to help the student with course selection and acclimatization to the Department. These assignments are based on perceived research compatibility and the funding available within the Department. Research advisors are chosen from the regular teaching and research faculty of the Department. There may be one co-advisor. A co-advisor may be chosen from the faculty outside the Department, but such arrangements must be approved by the Department and the Graduate School.

The first step in selecting a research advisor is the student to become familiar with the faculty and their research activities. Because we have an interdisciplinary mix of both faculty and students, you are required to arrange to meet during the first three weeks of the semester with each of the faculty in the Department. The average length of these meetings should be about 15 minutes, but will vary depending on the match between the student/faculty interests.

After meeting with all of the faculty, each student should provide the Director of Graduate Studies with a rank ordering of your top three choices for advisor by the beginning of the fifth week of the semester in which they begin their study. Shortly after student input has been received, the Director of Graduate Studies, in consultation with the Department Chair, will assign your research advisor. The assignments will be made based on information received from the students and faculty, research commitments and available resources.

Interaction with additional faculty during the establishment of the research proposal and during the completion of the research for the Ph.D. can often dramatically increase the quality of the learning experience of the student. The degree of additional interaction with such committees will be determined by the student in conjunction with the advisor. The Director of Graduate Studies must be kept informed of difficulties between a student and his/her advisor, as well as shifts in advisor.

2.2.2 Research Presentation

The ability to communicate research ideas is fundamental to developing a successful research career. Students are therefore expected to seek out opportunities to improve their communication skills through such avenues as submitting abstracts and/or presenting talks/posters at professional conferences, presenting research summaries to research sponsors, preparing manuscripts for submission to technical journals, and aiding their advisor in the development of research proposals.

Many students will find it advantageous to regularly present their research in front of a group of faculty and students. This will commonly occur either in regular research meetings at which faculty and graduate

students are present, or in front of four or five faculty recommended by the advisor. The benefits of such oral presentations include providing the student with input as to the merit and deficiencies of the research proposed or completed, identifying topics of study which should be pursued to better prepare the student to complete the research, and identifying deficiencies in the student's ability to communicate ideas. Each Ph.D. candidate should discuss the benefits of such presentations with his/her advisor.

2.2.3 Academic Requirements

A student seeking the doctoral degree must register for and complete at least 72 semester credit hours with grades of C or better (in all courses for which a letter grade is given) and a cumulative GPA greater than 3.0. The credits may include any combination of formal courses, directed studies, and research, but must include at least 18 credits of formal courses at the 500 or 600 level. With the approval of the Department Chair, courses numbered 400 through 499 may be taken to satisfy up to 10 hours of graduate credit requirements. Students who have completed master's degrees at other institutions may be able to transfer up to 24 credits towards a Notre Dame Ph.D. (See Also: Transfer Credits).

Doctoral candidates are expected to complete all requirements for their degrees within eight (8) semesters of their initial enrollment. Ph.D. candidates will not be eligible for support beyond their eighth semester of study unless exceptional circumstances exist and the Department formally recognizes the existence of exceptional circumstances at a faculty meeting.

2.2.4 Completion of the Written Exam Requirement

Students wishing to pursue the Ph.D. must demonstrate mastery in a number of subject areas related to their research topic. To encourage depth in the study of a select number of these areas and to provide a direct measure of the student's mastery of related subjects, all Ph.D. candidates must pass a written examination within the Department. This exam will occur at the beginning of the fourth semester.

The exam will consist of four individual exams, each of which covers a different subject area and is prepared by a different faculty member. The entire exam will cover a two-day period with a different subject exam being given each morning and each afternoon of that two day period. Each subject exam will cover a two-hour period and may be either open or closed book as decided by the faculty member writing that subject exam. The student should interview each faculty member preparing a subject exam well in advance of the exam to determine both the subject matter covered and the format of the exam.

The exam will be graded by the faculty who prepared the exam. It is necessary that the student pass three subject exams in order to pass the written exam. A student who fails the written may petition the faculty for a second opportunity to pass the exam. If the faculty vote to allow a second exam, the student must complete the exam by the end of the fourth semester. Only one retake will be allowed. A student failing this exam for the second time or a student failing this exam and not obtaining faculty permission to retake it will be considered ineligible for the Ph.D.

2.2.5 Research Proposal

Prior to the University candidacy exam, the Ph.D. candidate must submit a research proposal to the Director of Graduate Studies. This proposal should outline the literature pertaining to his or her research area, the hypothesis (hypotheses) to be addressed in the research, the techniques to be employed, and a projection of the time requirements to complete the research. Enough detail should be provided that faculty who will sit on the student's candidacy exam can critically review the choice of topic, the potential for success in the topic, and the student's preparation for conducting the proposed research. The proposal should be submitted to the Director of Graduate Studies a minimum of three weeks prior to the candidacy exam.

2.2.6 University Candidacy Exam

The University Candidacy Exam must be passed by the end of the eighth semester of study, but only after completion of the written exam and submission of the research proposal. This exam will test the candidate's preparation for research in the chosen subject area, the quality of the proposed study plan, the ability of the student to relate course work and independent study to the research area, and the quality of the preliminary research performed. The exam is an oral exam in front of a board of four voting members. The committee is formed by the Director of Graduate Studies based on recommendations by the student's advisor. Normally, this board has the same membership as the student's dissertation committee. Board members are chosen from the teaching and research faculty of the Department and include the dissertation advisor or co-advisors plus three official members. The Graduate School should be consulted before the Department or the student invites a faculty member outside the Department to be a board member.

A faculty member appointed by the Graduate School from a department other than the candidate'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. Three passing votes are required to pass the examination. The chair should, before the examination begins, ask the candidate's adviser to 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. The Graduate School officially notifies the student of the results of the candidacy examination.

In case of failure in either or both parts (i.e., presentation by the student and the subsequent questioning by those in attendance) of the doctoral candidacy examination, the Department Chair, on the recommendation of a majority of the examiners, may authorize a retake of the examination. 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 candidate's permanent record.

2.2.7 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.

2.2.8 Continuation of Research Funding

The Department of Civil Engineering and Geological Sciences makes every effort to maintain competitive stipends for all graduate students. However, continuation of research support is predicated on continuing progress towards the final degree requirements. The faculty will, on an annual basis, review the performance of all graduate students. Each student is required to submit a Graduate Student Progress Report (see Appendix F) during the fall semester every year. This review will provide an opportunity to adjust stipends based on academic and research performance (including either increases or decreases in stipend). The Department maintains the right to terminate funding of any graduate student not making satisfactory progress towards his or her degree requirements. Students have a maximum of 8 years of academic and financial eligibility. All funding is cut off after those eight years.

2.2.9 Award of Master's Degree to Doctoral Students

A doctoral student may receive the master's degree without completing a master's thesis if the student has completed the course requirement for the master's degree, passed the university candidacy examination for the doctorate, and been first or second author on a research manuscript accepted for publication or published in a refereed technical/scientific journal. The publication must be based on work performed while the student has been a graduate degree candidate at Notre Dame. The candidate will be required to present his or

her research paper in a format similar to the Comprehensive Master's Examination and subject to the same standards. Upon sustaining this exam, a master's degree will be awarded. In the event of failure, the student will forfeit eligibility for a master's degree without a thesis. This procedure must be completed at least one month prior to the Defense of Dissertation. Because no thesis is submitted, the degree is designated as "non-research" on the student's transcript.

2.2.10 Admission to Candidacy

Following completion of 48 approved credit hours with a grade of C or better and an overall GPA higher than 3.0, as well as completion of the Departmental written exam and the university candidacy examination, a student qualifies for admission to doctoral candidacy. Admission to candidacy is a prerequisite to receiving the Ph.D. degree. It is the responsibility of the student to apply for candidacy admission by submitting the appropriate form (Appendix See Also: PH.D. FORMS) to the Graduate School office through the Director of Graduate Studies. Consult the Graduate School Calendar for the appropriate deadline.

2.2.11 Dissertation and Defense

The dissertation should follow the guidelines in the Graduate School's Guide for the Writing of Theses and Dissertations, available at the Graduate School office. The dissertation advisor indicates his or her approval of the dissertation and its readiness for the readers by signing the dissertation. The candidate then delivers typed copies of the finished dissertation, signed by the advisor, to the Director of Graduate Studies for distribution to the three official readers who are appointed by the Director of Graduate Studies based on the recommendation of the advisor. The readers will be selected on the basis of familiarity with the material and ability to provide critical reading. The dissertation advisor or co-advisors may not be counted as the official readers. The Graduate School must be consulted before the Department invites a committee member from outside the teaching and research faculty of the Department.

Timely reading of the dissertation by the readers is expected, as is timely response by the student to the comments and requests of the readers. 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 which has been unanimously approved for defense by the three readers may be defended.

The dissertation, in updated form, must be available to all students and faculty for two weeks prior to the final defense. The process of approval must be driven by the quality of the work and not related to deadlines which may exist in regard to awarding of a degree, job responsibilities, travel plans, etc. All faculty and students are encouraged to provide comments on the dissertation to the author and to participate, as appropriate, in the defense.

Even though the dissertation has reader approval, revisions may be required at the time of the final defense of the dissertation. If defects in the dissertation come to light at that time, the candidate may be asked to revise the dissertation before it is accepted by the Graduate School and the degree is conferred. In such a case, it will be the responsibility of the candidate's advisor to report to the Graduate School that such revisions have been completed satisfactorily.

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 defense board the dissertation's substantive and methodological force, particularly in regard to any unexpressed assumptions or unstated consequences it might entail. In this way, the candidate and the board acquire a mutually confirmed insight into the candidate's scholarly grasp of his or her chosen research area.

The defense board consists of four voting members, including the dissertation advisor and three official readers, nominated by the Department and appointed by the Graduate School. 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 examiners. At least three votes (out of a maximum of four) will be required to pass a candidate. The chair sends a written report of the examination's overall quality and of the voting results promptly to the Assistant Vice President for Advanced Studies.

2.2.12 Graduation Procedure

To receive the degree at the next commencement, the doctoral student who has successfully defended his or her dissertation must present two clean copies, signed by the advisor, to the Graduate School office. The delivery deadline is published in the Graduate School Calendar (See Appendix See Also: ACADEMIC CALENDAR). The Graduate School office will verify the dissertation for compliance with the approved style manual. The candidate then delivers the approved copies along with the Graduate School approval form to Hesburgh Library where he or she pays the microfilming costs. The Graduate Council requires that all doctoral dissertations be microfilmed by University Microfilms, Ann Arbor, Michigan. The microfilming office in Hesburgh Library handles this publication requirement.

3.0 ACADEMIC INTEGRITY

Integrity in scholarship and research is an essential characteristic of 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 Honor Code. 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, nor conduct unrelated to the research process. Misconduct includes practices that materially and adversely affect the integrity of scholarship and research. If an individual suspects that a violation of academic integrity has occurred, he or she should discuss the matter confidentially with the department chair or appropriate director. If there appears to be a reasonable basis for further inquiry, 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 vice president. 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 Vice President for Graduate Studies and Research within 10 days. The student has

the right to appear before the Vice President or his or her delegate. The Vice President may decide to appoint an ad hoc committee to handle this appeal, if deemed necessary.

4.0 FACILITIES

4.1 Library Facilities

4.1.1 Description

The University Libraries system holds more than 2 million volumes, 1.4 microfilm units and 10,825 sound recordings, and subscribes to 20,231 serials.

The University Libraries system consists of the main library and branch libraries. The main library is the Theodore M. Hesburgh Library. The branch libraries are: Architecture Library (Architecture Building, 631-6654), Chemistry-Physics Research Library (Nieuwland Science Hall, 631-7203), Engineering Library (Fitzpatrick Hall of Engineering, 631-6665), Life Sciences Library (Galvin Life Science Center, 631-7209), and Mathematics Library (Computing Center and Mathematics Building, 631-7278).

The University of Notre Dame Library System has a wide variety of on-line resources available that are accessible through the library www site. The libraries also have an extensive collection of CD-ROM discs, which contain vast amounts of data on a variety of subjects. For more information on these library resources, contact the Reference desk of the Hesburgh Library.

4.1.2 Circulation

Items may be checked out by presenting your I.D. at the circulation desk. There is no limit to the number of items that may be charged out at one time. Graduate students have a loan period of one semester for books and two days for bound journals. During the summer, Hesburgh Library limits all loans to two weeks.

At the Engineering Library and Hesburgh Library, the first notice for overdue books are sent out 10 days after the books are due. If the items are not returned promptly, Student Accounts is notified and bills your account for the cost of the book, a \$10.00 circulation service fee and a \$15.00 processing fee. If the book is eventually returned, the cost of the book and processing fee are removed from your account but a \$10 circulation service fee will remain. The other branch libraries may handle fees differently.

4.1.3 Interlibrary Loan

Interlibrary loan requests may be made for books and journal reprints in the Engineering Library. Both services are free. Ask at the Engineering Library for the appropriate form and you will be notified when the materials arrive. Sample forms appear in Appendix See Also: LIBRARY FORMS.

4.1.4 Book and Journal Requests

Suggestions for new books and magazines may be made via pink request forms, or in person at the Reference Desk or Collection Development Department on the first floor of Hesburgh Library.

Requests for engineering books may be made by filling out a book purchase request form at the Engineering Library. Forms are available from the staff of the Engineering Library. A sample appears in Appendix See Also: LIBRARY FORMS. If the book is from a major publisher and a recent publication (within the last 5 years) the chances of your request being filled are very good. About 70% of all requested books are

purchased. Books requested through a faculty member may have a better chance of being purchased. The librarian will hold the book for you when it arrives and notify you that it is available.

4.1.5 Data Base Search

Data base search for bibliography on your research topics can be performed free of charge from any networked computer using the Electronic Resources Gateway at <http://lib.nd.edu/eresources/gateway/>.

More comprehensive computerized data base searches for bibliography (or data) on your research topics are available on the University's www site or can be done at the Chemistry-Physics, Engineering and Life Sciences Libraries by filling out a database search service request form. A copy of this form appears in Appendix See Also: LIBRARY FORMS. Searches done at the Engineering Library are made through the Library staff. These searches are rather expensive and should be done only after other means such as Wilson disc search have been exhausted.

4.1.6 Library Hours

Hesburgh Main Library: 631-6258

Fall/Spring Semester

- Mon.-Fri. 7:30 am - 2 am
- Sat. 9 am - 2 am
- Sun. 10 am - 2 am

Summer Session

- Mon.-Fri 7:30 am - midnight
- Sat. 9 am - midnight
- Sun. 1 pm - midnight

Engineering Library: (149 Fitzpatrick Hall) 631-6665

Fall/Spring Semester

- Mon.-Thurs. 8 am - 11 pm
- Fri. 8 am - 6 pm Sat. 10 am - 5 pm
- CLOSED on home football Saturdays.
- Sun. 1 pm - 10 pm

Summer Session

- Mon.-Thurs. 8 am - 8 pm
- Fri. 8 am - 5 pm
- Sat. 12 noon - 4 pm
- Sun. 1 pm - 5 pm

Library hours may vary during breaks, holidays and football weekends. Chemistry/Physics, Engineering and Mathematics are closed on home football Saturdays. Changes are posted at the libraries in advance.

4.2 Computing Facilities

4.2.1 University Computing Facilities

The Office of Information Technologies (OIT) computing facilities are available to all students, faculty and staff of Notre Dame, St. Mary's and Holy Cross. The OIT is located in the Computing Center and Mathematics Building, 631-5600. The OIT also operates the Information Resource Center (IRC), 631-8111, and the Computer Store, 631-7477. See: OFFICE OF INFORMATION TECHNOLOGIES CAMPUS CLUSTER.

An account number is necessary to obtain access to the IBM SP1, IBM SP2 and the Sun SPARCstation computers. Graduate students must go through a faculty member to obtain an account on the IBM SP1. Application forms for SPARCstation accounts are available at the Information Resource Center (IRC), room 111 in the Computing Center/Math Building, 631-8111, and from Paul Go, 175 Fitzpatrick Hall, 631-6553. Accounts on the UNIX machines are generally valid for the duration of the students residence at the University. If additional disk space is necessary, application forms can be obtained from Paul Go. Various peripheral devices for the clusters are also available including laser printers. Software packages and documentation may be checked out from the computer consultants during consulting hours. A Notre Dame, St. Mary's, or Holy Cross ID is required to check out any software or documentation.

The Information Resource Center is available for assistance, and student consultants are on duty in the clusters. The time schedules for the clusters are posted in all campus clusters. You can obtain a copy of this schedule from the Information Resource Center.

On-line UNIX related help is also available via electronic-mail sent to: suggest@darwin.helios.nd.edu.

The Computing Center offers free short courses in a variety of microcomputer, workstation and mainframe topics each semester. Classes are usually in the afternoon and are helpful to new graduate students.

Phone numbers for telephone access (via a modem) are given below:

- (574) 634-2462 (300-14400 bps campus network terminal server)
- (574) 634-2422 (300-2400 bps for 3270 emulation for the IBM systems)
- (574) 634-2411 (300-1200 bps line-by-line standard ASCII connection to the IBM)

4.2.2 College of Engineering Computing Facility

The Engineering Computing Facility is located on the first floor of the Fitzpatrick Hall of Engineering (rooms 148, 150, 150a, 170, 177).

The Facility is open to all members of the Notre Dame family. However, instructional use of the labs in the College of Engineering takes priority over other uses of the lab. Consultants are available to provide assistance most afternoons and evenings. Regularly scheduled consulting hours are Monday, Wednesday and Thursday from 1:00-5:00 pm in the Fitzpatrick public cluster. This consulting is intended for help with "walk-in" questions from all faculty, students and staff.

4.2.3 CE/GEOS Computing Facility

The Civil Engineering and Geological Sciences Computing Facility in room 112 Cushing Hall is available to all graduate students and faculty in the Department as well as to undergraduates engaged in research. We are very pleased to have outstanding computational facilities in our department. Our computing equipment is very expensive and requires our careful use. The following policies must be followed when using CE/GEOS computing facilities:

Any malfunction or problem with SUN equipment should be immediately reported to Dr. J. J. Westerink, computing coordinator. Send e-mail message to report@rayleigh.ce.nd.edu. This message will be automatically forwarded to Dr. Westerink.

No equipment or components may be moved, swapped or switched without permission from Dr. Westerink.

No food or drinks are allowed in any CE/GEOS computer facility.

Printers may only be used with clean new paper. Paper that already has been printed on fouls the printer drum and causes our printer to produce poor quality prints. Correct paper for the printers can be obtained in the departmental office (See Dian Wordinger in the CEGEOS office).

The last person to leave a facility must ensure that the door is locked. All facilities must be properly secured at all times.

No unauthorized users may use CE/GEOS facilities.

If you are a user of the CE/GEOS computer room located in 112A Cushing, please sign up for 2 week rotations on the sign up sheet located in this room to maintain the facility.

While signed up you should:

- Make sure white paper is available for the printer (see Dian to obtain paper).
- Make sure the printer cartridge in the printer is replaced when necessary (see Dian for the cartridge).
- Make sure the room is neat and orderly.
- Keep screens clean using materials provided in the computer room.

If you have any questions on computer facility policies, please contact Dr. Westerink.

4.3 CE/GEOS Laboratories

4.3.1 Laboratory Safety and Security

The Department of Civil Engineering and Geological Sciences provides safe, well-equipped research laboratories for graduate student use. However, these areas will remain safe only as long as proper safety procedures are followed. Students will be held responsible for acquainting themselves with these procedures, and seeing that they are followed. Laboratory practices deemed unsafe by the faculty will not be tolerated.

Because the departmental laboratories are so diverse in their purposes, procedures, and equipment, individual safety procedures will not be listed here. However, all users of these laboratories are to observe the following safety and security procedures.

Graduate students with a need for routine access into one of the departmental laboratories may check out a key for that laboratory, upon payment of the requisite deposit from the departmental office (contact Mollie Dash). Keys may not be traded among, loaned, or passed on to other students. Keys must be returned to the departmental office as soon as the need for routine access has passed.

Users of a laboratory must share in maintaining its security. Laboratory doors are not to be propped open or left unlocked when the laboratory is unattended, and must be locked at the end of the working day, or if the student is to be away from the lab for an extended period.

Certain labs are designated as radiation areas. These labs must be locked at all times when unoccupied. Failure to meet this requirement may result in substantial fines to the University.

Unauthorized users are not allowed into a laboratory. Guests may be invited into a laboratory, but may not be left unsupervised. The person hosting a guest is responsible for the safety of the guest. Children or dependents of graduate students are considered guest.

Each student using a laboratory must be acquainted with all the special safety procedures and safety equipment in the laboratory. These include the locations of emergency controls (such as the shut-off switches), and the locations and use of all safety equipment and first aid supplies. Particular care should be exercised when conducting experiments late at night or on the weekend or at anytime when no one else is present.

It is essential that students do not create hazards for themselves or their co-workers, and that all laboratory personnel are able to take prompt, knowledgeable action if a hazardous situation does arise.

Graduate students who supervise undergraduate laboratory experiments assume primary responsibility for safety procedures. If additional safety supplies (such as hard hats) are required, the course instructor should be notified.

Any graduate student developing a new experiment or acquiring a new piece of equipment will also be responsible for developing and recording the proper safety procedures. This must include the notification of the Faculty Supervisor, and all the current laboratory users.

No items (chemicals, equipment, personal computers, etc.) are to leave Fitzpatrick or Cushing Hall without prior permission from the Faculty Supervisor or the Department Chairman.

Any inadequacy of laboratory safety procedures or safety equipment must be reported immediately to the Department Chairman so that the situation may be corrected.

At the end of graduate studies, the graduate student is responsible for cleaning and properly disposing of all research materials, including hazardous waste. If this is not possible, the Department Chairman is to be notified of the circumstance and arrangements made for the materials to be remove. Failure to notify or properly dispose of all research materials may result in a hold being placed on the students academic records.

Repeated violations of safety procedures, or the creation of unsafe or unhealthy laboratory conditions must and will be reported to the Department Chairman. Repeated failure to work safely in the laboratory will result in the forfeiture of all laboratory privileges.

4.3.2 Laboratory Facilities

The Department of Civil Engineering and Geological Sciences maintains the following laboratories:

FACILITY	ROOM	PHONE
Aquatic Chemistry Lab <i>P.Maurice</i>	103 (Cushing)	----
Atomic Force Microscopy Lab <i>P.Maurice</i>	B18b	1-5843
Biotechnology Lab <i>R.Nerenberg/J.Woertz</i>	B18a	1-0490
Center for Environmental Science & Technology (CEST) <i>P.Maurice</i>	152A	1-8376
Clean Lab <i>C. Neal</i>	112F (Cushing)	----
Computational Geophysics Lab <i>S.Sakimoto</i>	105A (Cushing)	1-7489
Crystal Structures & Environmental Mineralogy Lab <i>P.Burns</i>	A62	1-7216
Electron Microprobe Lab <i>C. Neal</i>	106B (Cushing)	
Environmental Chemistry Lab <i>P. Maurice</i>	A65	1-0556
Environmental Engineering Lab <i>J.Talley</i>	A66	1-4310
Environmental Hydraulics Lab <i>J.Westerink</i>	114 (Cushing)	1-3864
Environmental Molecular Science Institute (EMSI) <i>J.Fein</i>	A54	1-4380
Environmental Research Lab <i>J.Talley</i>	A65a	1-4310
Environmental Thermal Desorption Research Lab <i>J.Talley</i>	112D	1-0478
Geomicrobiology Lab <i>J.Fein</i>	115 (Cushing)	1-8287
Geophysical Flows Lab <i>S. Sakimoto</i>	155	
Geotechnical Lab <i>L. Salvati</i>	152C	1-3782
Groundwater Hydrology Lab <i>S. Silliman</i>	B18	1-0490
ICP-MS Analytical Research Facility <i>C. Neal</i>	105 (Cushing)	1-9340
Materials Characterization Lab <i>W. Vichit-Vadakan</i>	112A	1-3760
NatHaz Modeling Lab <i>A.Kareem</i>	103 (Cushing)	1-8453
Sample Preparation Lab <i>C. Neal</i>	114 (Cushing)	----
Soils/Materials Lab (Teaching Lab) <i>L. Salvati</i>	112 (Cushing)	1-9189
Structural Dynamics & Monitoring Lab (Dynamo) <i>T. Kijewski-Correa</i>	107 (Cushing)	1-3914
Structures Systems Lab (Highbay) <i>Y. Kurama</i>	101	1-7297

4.4 Copy Facilities

The University Copy Center is located in the back of the LaFortune Building and is open during regular business hours. The Center makes enlargements and reductions as well as providing regular photocopying services.

The library copy center located on the first floor of Hesburgh Library is available to make photocopies and reductions. Additional copy machines are available in Hesburgh Library and each branch library.

The Departmental copy machine is located in 160A Fitzpatrick and is available weekdays from 8-12 a.m. to 1-5 p.m. Personal copies can also be made on a cash basis for \$0.05 a copy. Transparencies are available for \$0.20 each.

5.0 GRADUATE STUDENT UNION

The Graduate Student Union is the representative body of the graduate students at the University of Notre Dame. All graduate students (with the exception of the MBA program and the Law School) at the University of Notre Dame are automatically a member of the GSU. The GSU office is located in 219 LaFortune. The phone number is 631-6963, and the e-mail address is gsu.1@nd.edu. The office hours are Monday through Friday, 10 am to 3 pm.

Graduate students are billed a total of \$40.00 on their first Student Accounts Statement at the beginning of each academic year. There is a \$30.00 SA fee and a \$10.00 GA fee. The SA fee provides the general operating budget of the GSU which includes funding social activities, lectures, orientation, budgets for the various committees and salary for the GSU secretary. The GA fee is used exclusively for the funding of the Robert E. Gordon Travel Grant Program. The GA fee is optional and those students who do not wish to pay the membership fee may contact student accounts prior to November 1 in order to obtain a "financial hardship" waiver.

The structural organization of GSU consists of its elected officers, departmental representatives, committee chairs and representatives on various university committees. GSU meetings are open to everyone, but only the officers and the departmental representatives have voting privileges. The Department of Civil Engineering and Geological Sciences may be represented by up to two graduate students. If you are interested in getting involved with the GSU either as the CE/GEOS representative, doing committee work, or one of the many other ways in which the GSU always needs help, please contact the GSU office. Departmental representatives attend monthly GSU council meetings, receive and distribute the newsletter to their department and keep the department informed of issues and events of the GSU. More information on various GSU committees and activities are available in the document *The GSU Guide to Graduate Student Life at The University of Notre Dame*. This guide also includes helpful information on various academic and recreational facilities on the campus, as well as information on the Greater South Bend/Mishawaka area, including restaurants, transportation, community assistance, parks and recreation. Extra copies are always available in the GSU office.

APPENDIX A: POLICIES ON HARASSMENT, GRIEVANCES AND OTHER ASPECTS OF STUDENT LIFE

Sexual and discriminatory harassment are prohibited by the University. Definitions and policies regarding sexual harassment, discriminatory harassment and other aspects of student life and behavior are described in du Lac, which is the University's description of student life policies and procedures. Students in the Graduate School must abide by those portions of du Lac which explicitly refer to graduate students or to the Graduate School. Copies of du Lac are mailed to all continuing students at the beginning of the fall semester, and may be obtained from the Office of Residence Life, 315 Main Building. The Vice President for Graduate Studies and Research has appointed an academic counselor in the Graduate School to be available to graduate students who want to discuss confidentially problems they are having in their programs. The counselor can help a student decide how to resolve the problem. The Graduate School's academic counselor is Dr. Barbara M. Turpin, associate dean for graduate admissions (631-5778).

A.1 Disputes and Grievances

Any disputes and grievances within the Department should be referred to the Director of Graduate Studies and to the Chair of the Department. The Director of Graduate Studies may set up an ad-hoc committee to investigate and resolve the grievance. If the student feels, after exhausting the Department, that the grievance has not been treated fairly, he or she should consult with the Graduate School.

A.2 Discriminatory Harassment

A.2.1 Policy

The University of Notre Dame believes in the intrinsic value of all human beings. It is, moreover, committed to the full peaceable participation of all its members in the educational endeavor it fosters. This is the reason that the University prohibits discriminatory harassment as defined below. The University is also committed to the free expression and advocacy of ideas; it wishes to maintain the integrity of this commitment as well. For this reason, cases of verbal harassment are defined here with great caution. Harassment in general is prohibited elsewhere in the University's regulations.

A.2.2 Definition

For purposes of this policy:

Harassment

Harassment is any physical conduct intentionally inflicting injury on the person or property of another, or any intentional threat of such conduct, or any hostile intentional, and persistent badgering, addressed directly at another, or small group of others, that is intended to intimidate its victim(s) from any University activity, or any verbal attack, intended to provoke the victim to immediate physical retaliation.

Discriminatory Harassment

Conduct as described in the previous paragraph, constitutes discriminatory harassment, if, in addition, it is accompanied by intentionally demeaning expressions concerning the race, gender, religion, sexual orientation, or national origin of the victim(s). (*Approved at the April 16, 1992 meeting of the Academic Council.*)

A.2.3 Prohibition

All discriminatory harassment is prohibited.

A.2.4 Administration of Policy

It is appropriate to report any allegation of discriminatory harassment to the authorities of the University. The ways available for doing this are as follows:

Students

An alleged incident of discriminatory harassment by a student toward another student that occurs outside a residence hall is to be reported to the Office of Residence Life and shall be handled in the same manner as other violations of University rules and regulations. (See section of du Lac entitled University Disciplinary Procedures.) Likewise, any alleged incident of discriminatory harassment by a student toward a faculty member or staff member is to be reported to the Office of Residence Life. Any alleged incident of discriminatory harassment by a student toward any other student that occurs in a residence hall is to be reported first to the Rector and in consultation with the Office of Residence Life, a determination shall be made as to whether the allegation should be handled at the hall level or whether the matter should be referred to the Office of Residence Life.

Faculty

An alleged incident of discriminatory harassment by a faculty member is to be reported to the chair of the academic department, or, in cases involving the chair, to the dean of the college. If the matter cannot be resolved at the department or college level, it is to be referred to the Provost's Office.

Staff

An alleged incident of discriminatory harassment by a staff member is to be reported to the Director of Human Resources, and shall be handled by the Office of Human Resources in the same manner as any other violation of University rules and regulations as outlined in the University Human Resource Manual.

Administration

An alleged incident of discriminatory harassment by an administrator is to be reported to the appropriate superior officer of the person involved.

Ombudsperson

Notwithstanding the above, a person alleging discriminatory harassment may choose to report the incident to the University ombudsperson. This is to be a member of the University community selected by the President, in consultation with the other officers of the University, for that task. The ombudsperson, after taking information of the incident, is to help the complainant handle the matter, either by informal conciliation, or by helping the complainant proceed with the reporting procedure described above. [Note: Prof. Maxwell Johnson (631-3909) is currently the University ombudsperson.]

A.2.5 Existing University Rules and Regulations

This policy is intended to be an addition to existing University rules and regulations and does not alter or modify any existing University rule or regulation.

A.3 Sexual Harassment

A.3.1 Policy

The University of Notre Dame strives to maintain a community where every individual can live, work and learn free from sexual harassment. At the University of Notre Dame, we are trying to eliminate sexual harassment on campus through education of all members of the University community. The materials posted on our website www.nd.edu/~harassmt/ have been developed in an attempt to educate all members of the community that sexual harassment is not tolerated, to inform people of their rights, and to direct people where to go for help. The University is also dedicated to quickly and thoroughly responding to all reports of harassment, and to enforcing the “no retaliation” part of the sexual harassment policy. We hope these materials will help members of the Notre Dame community understand sexual harassment and their rights and duties with respect to harassment. Most importantly, please remember that the University can only stop sexual harassment if people report harassment they are experiencing. If you are experiencing conduct that could be sexual harassment, we urge you to report the conduct to one of the Ombudspersons or Contact Persons identified in these materials

APPENDIX B: CIVIL ENGINEERING and GEOLOGICAL SCIENCES DIRECTORYFaculty

Name	Office	Office Phone
Burns, Peter	156A	1-7852
Fein, Jeremy	166	1-6101
Kareem, Ahsan	156C	1-6648
Ketchum, Jr., Lloyd	156B	1-6488
Kijewski-Correa, Tracy	158	1-2980
Kirkner, David	162	1-6518
Kurama, Yahya	157	1-8377
Maurice, Patricia	152	1-9494
Neal, Clive	106D (Cushing)	1-8328
Nerenberg, Robert	163	1-4098
Rigby, Jr., J. Keith	169	1-6245
Sakimoto, Susan	105A (Cushing)	1-7489
Salvati, Lynn	168	1-6686
Silliman, Stephen	106E (Cushing)	1-5846
Talley, Jeffrey	106C (Cushing)	1-5164
Vichit-Vadakan, Wilasa	163	1-6247
Westerink, Joannes	167	1-6475
Woertz, Jennifer	164	1-3469

Staff

Tammy Youngs	156	1-8227
Mollie Dash	156	1-5381
Dian Wordinger	156	1-5380
Kristine Mitchell	B-18	1-4310/1-8556
Brent Bach	101 (Cushing)	1-7297

Graduate Student Offices

Graduate Students	112 (Cushing)	1-4306
Graduate Students	120 (Cushing)	1-4307
Graduate Students	121 (Cushing)	1-4308

APPENDIX C: MASTER'S DEGREE FORMS AND INFORMATION

Required Steps for Master's Thesis

Forms:

- Reader's Report on Master's Thesis
- Application for Admission to Master's Degree Candidacy

See Tammy Youngs, 156 Fitzpatrick Hall, for a copy of these forms.

APPENDIX D: PH.D. FORMS AND INFORMATION

Required Steps for the Ph.D. Dissertation

Forms:

- Ph.D. Oral Candidacy Examination
- Reader's Report on Doctoral Dissertation
- Defense of the Doctoral Dissertation
- Application for Admission to Doctoral Degree Candidacy

See Tammy Youngs, 156 Fitzpatrick Hall, for a copy of these forms.

APPENDIX E: ACADEMIC CALENDAR 2004-2005

APPENDIX F: MISCELLANEOUS CE/GEOS AND UNIVERSITY FORMS AND INFORMATION

- Application for Financial Support-Summer Tuition
- Summer Session Language and Teaching Skills Courses
- CE/GEOS Graduate Student Progress Report
- CE/GEOS Requisition Form
- Faculty/Staff Expense Report
- Memorandum on Proposed Travel
- Academic Course Change
- Transfer of Credits
- Eligibility Extension/Leave of Absence

See Tammy Youngs, 156 Fitzpatrick Hall, for a copy of these forms.

APPENDIX G: LIBRARY FORMS

- Interlibrary Loan Book Request
- Interlibrary Loan Photocopy Request
- Database Search Request

APPENDIX H: OFFICE OF INFORMATION TECHNOLOGIES CAMPUS CLUSTER

Complete information regarding the facilities and services of the Office of University Computing can be found on the World Wide Web at:

<http://www.nd.edu/~ndoit/clusters/>

APPENDIX I: RECYCLING POLICY

WHITE PAPER RECYCLING

Our college has been selected in a pilot recycling program which will collect and recycle white paper. If you would like to participate, please follow these steps:

- If your office does not already have one, obtain a small blue recycling trash bin from the CE/GEOS main office. This bin is for your use and can be kept in your office.
- Read the attached list of acceptable and unacceptable recyclables. Please be careful to only recycle acceptable paper since this will determine the success of our recycling program.
- Fill your small recycling trash bin with acceptable paper. Once it is filled, please empty your small bin into the nearest large blue plastic collection bin (a 1 ft x 1 ft x 3 ft blue bin with a recycling symbol). Large blue collection bins are located as follows:

Level B:	Adjacent to the elevator
Level A:	Adjacent to the elevator
1st Floor:	Fitzpatrick 156 in the CE/GEOS main office
	Fitzpatrick 160A in copy room
	Cushing 106 in CE/GEOS office
	Cushing 120 in CE/GEOS student offices
	Cushing 112 in CE/GEOS lab area

PHONE BOOKS AND NEWSPAPERS

- Phone books, newspapers, schedule of courses or DART books and newspaper-like materials can be deposited into recycling boxes made out of cardboard and marked for recycling phone book to be located in the main hall between Cushing and Fitzpatrick buildings in the near future. Phone books can also be placed in the cardboard box marked "Recycle Phone Books, etc." outside the CE/GEOS office.

HIGH GRADE BOUND MANUALS

- High grade white paper bound manuals, such as the UND Bulletin of Information for Undergraduate programs can be placed in the cardboard box marked "Recycle Phone Books, etc." outside the CE/GEOS office.

ALUMINUM CANS

- Aluminum cans can be recycled in blue recycling bins marked "Aluminum Cans" located in the main hall between Fitzpatrick and Cushing Halls.

GLASS BOTTLES

- Glass bottles can be recycled in the blue recycling bin marked "Glass" located in the main hall between Fitzpatrick and Cushing Halls. Please make sure the bottles have been thoroughly washed out with water so they do not attract insects.

If you have any questions regarding the Recycling Policy, please contact Dr. Joannes Westerink, 167 Fitzpatrick Hall, Telephone 1-6475 (jjw@photius.ce.nd.edu).

RECYCLING OF WHITE PAPER

YES	NO
White letterhead (with black or colored ink) - gold INK is OK, as long as it is not metallic foil	Letterhead with metallic foil
White ledger paper	Yellow ruled paper
White notebook paper	Glossy paper (such as magazines)
High Grade (bond) computer paper	Carbon paper forms
Copier paper	NCR carbonless forms
Recycled copier paper	FAX paper (slippery/glossy type)
White index (3 x 5) cards	Envelopes of any type or color
(A <u>small quantity</u> of staples and paperclips are acceptable)	Post-It notes
	Newspaper
	Food wrappers or paper cups
	Paper towels or tissues
	Tracing paper