

***TRANSPORTATION INTERDISCIPLINARY GRADUATE
PROGRAM HANDBOOK***

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I. Introduction

Interdisciplinary M.S. degree in Transportation

Iowa State University's Master of Science degree in transportation is one of only a few truly interdisciplinary transportation degrees nationwide. It includes three core fields: Transportation Engineering (through the Department of Civil and Construction Engineering), Community and Regional Planning (through the College of Design), and Logistics, Operations and Management Information Systems (through the College of Business). Up to date information about the M.S. Degree in Transportation and many excellent student resources may be found at <http://www.ctre.iastate.edu/education.htm>

Students develop a cohesive curriculum from the three core fields and related fields such as economics, political science, industrial engineering, sociology, and other disciplines. The degree program has a minimum of core requirements and, under the direction of an advisor; students design a program to meet their academic and career objectives.

The Transportation degree program is a select program that accepts only the most qualified students. The degree is research oriented, requiring students to write a thesis based on their research interests and self-designed program of courses. The number of students is limited to ensure all students have an opportunity to work closely with a faculty member on research. The Center for Transportation Research and Education enhances student research opportunities by sponsoring student work on research projects.

Past and current students in Transportation have had backgrounds as varied as the program itself. These students have had bachelor degrees in Business Administration, Engineering Science, Mechanical Engineering, Sociology, Political Science, Industrial Engineering, Urban Planning, and Civil Engineering. Because transportation is inherently interdisciplinary, the perspective of many disciplines is needed to solve the complex transportation questions facing the next generation of transportation professionals. The diversity of students and faculty participating in the Transportation program enriches the academic experience and allows the student to see the strength of interdisciplinary approaches to planning, operating, managing and maintaining the next generation of transportation systems.

A degree in Transportation can support careers in:

- Transportation Policy Analysis
- Transit Planning and Operations
- Urban and Statewide Transportation Planning
- Carrier and Shipper Transportation Analysis
- Transportation and Development Economic Analysis
- Federal and State Transportation Strategic Planning
- Transportation Planning and Engineering Consulting
- Transportation Systems Management

Additional information about the interdisciplinary Transportation program is available at <http://www.ctre.iastate.edu/education.htm>.

Administration and Contact Information

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Participating Departments

Civil and Construction Engineering, College of Engineering

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Community and Regional Planning, College of Design

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Logistics, Operations, and Management Information Systems, College of Business

Contact:

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Transportation Faculty

Civil and Construction Engineering

Shauna L. Hallmark
Edward J. Kannel
Tom H. Maze
Reginald R. Souleyrette
Omar Smadi

Community and Regional Planning

Steve Andrie

Timothy O. Borich

Susan L. Bradbury

Tara Lynne Clapp

Stuart H. Huntington

Riad G. Mahayni

Gary A. Mattson

Francis Y Owusu

David Plazak

R. Duane Shinn

I-Shian (Ivan) Suen

Logistics and Management Information Systems

Benjamin J. Allen

Michael R. Crum

Paul D. Larson

Richard F. Poist, Jr.

Yoshinori Suzuki

Clyde K. Walter

II. Arrival at Iowa State

Upon arrival at Iowa State, a student will need to complete a number of activities. The following are some of the most important tasks that should be attended to:

- **Visit the Center for Transportation Research and Education (CTRE).** This will allow for an introduction to the faculty, staff and students at CTRE.
- **Obtain an ISU Card.** Obtain your ISUCard (student i.d.) from the ISUCard Office in 0530 Beardshear Hall. If this is your first card, you will need a picture ID to verify who you are. An ISUCard must be obtained before you can open an email account.
- **Create an Email account.** Register for email at the Durham Computational Center (195 Durham Center) and check it daily. Email is the most commonly used means of communication for many professors to communicate to their students.
- **Read this handbook.** This handbook contains detailed instructions and tips to make your transition as a graduate student at Iowa State University as smooth as possible.
- **Become familiar with your home department.** It is recommended that incoming students become familiar with their home department (CCE, CRP, or LOMIS) and specifically, the location of the department's offices. Students will be required to visit these offices throughout the course of their studies to file paperwork
- **Obtain the following references and examine them carefully.** They contain information about University regulations and requirements for graduation:

ISU Graduate Student Orientation Handbook

You should have received a copy from the Graduate College before your arrival.

Orientation Handbook for International Students

www.iastate.edu/~internat_info/handbooks/students/orientstud_bkp.html

Graduate College Handbook

www.grad-college.iastate.edu/degree/graduatecollegehandbook.html

Graduate Thesis Manual

www.grad-college.iastate.edu/deadline/thesismanual.html

Copies are available from the Graduate College Office, 10 Pearson Hall.

Iowa State Graduate College forms are available on the Internet at:

www.grad-college.iastate.edu/deadline/formss.html

Additional ISU forms are available at: www.adp.iastate.edu/forms.html

- **Other useful references include**

General Catalog

www.iastate.edu/~catalog/

Catalogs also are available in the ISU Admissions Office, 100 Alumni Hall.

Schedule of Classes

www.adp.iastate.edu/cgi-bin/class

Schedule booklets are issued for each semester, and can be purchased at the University Bookstore, Memorial Union.

AccessPlus

<https://accessplus.iastate.edu/frontdoor/login.jsp>

Iowa State University's AccessPlus is a personalized secure university information resource that provides on-demand accessibility to your confidential information. This source provides confidential access to:

- Address Change
- Current Student Information
- Financial Aid Information
- Grade Report
- Job Board
- Long Distance Code (for students living in University housing)
- Registration for classes
- Residence Hall Information
- Tax Information
- University Bill
- Unofficial Transcript
- Student Class Schedules

Iowa State University Phone/Email Directory

www.adp.iastate.edu/cgi-bin/phf

The University phone directory is updated each fall; copies can be purchased at the University Bookstore, Memorial Union. The directory includes a two-year calendar of academic dates and deadlines. The directory also is available online, and is updated regularly throughout the year.

III. The First Year

New Transportation students are admitted to the program in one of two categories:

- *First year students*
- *Current ISU students admitted to Transportation as "concurrent degree candidates"*

In either case, students admitted into the Transportation program spend their first year doing research work, taking classes, choosing a major professor, establishing a Program of Study Committee and working on a proposal for a thesis. The major professor and the POS Committee help the student choose courses to fulfill the program requirements.

Graduate Student Orientation

For new graduate students, the academic year begins with a Graduate Student Orientation offered by the Graduate College. Incoming graduate students will receive information concerning this orientation in the weeks preceding the start of classes. This is a time to become acquainted with the University, its policies, and requirements. This is also a time for incoming students to familiarize themselves the Transportation program, its faculty, students, and to prepare for registration and the start of classes.

Registration for Classes

During their first weeks at ISU, before classes begin, it is advisable for a student to meet with a professor that is familiar with the Transportation program for counseling and preparation of a class schedule for the upcoming semester. To register for classes, a Registration Access Number (RAN) is required. **This number may usually be obtained from either the home department, or the Chair of the Transportation program.** Upon obtaining this number, log on to AccessPlus <https://accessplus.iastate.edu/frontdoor/login.jsp> and select the Register for Classes option. This will allow the student to register for classes for the upcoming semester.

**Note: Upon the selection and approval of a major professor, Registration Access Number forms will be sent to the major professor.*

Choosing a Major Professor

A major professor (advisor) should be selected during the first semester. Typically the faculty directing the student's research should be their major professor. Many incoming students will be appointed to a potential research project based on their perceived research interest, and the faculty directing that project may act as a temporary major professor. After becoming familiar with the faculty in their major department and participating departments, students are free to contact potential major professors to discuss the possibility of performing their research work under them. The student's temporary major professor should be informed of any change being made, prior to the end of the first semester. Roles and responsibilities for students and their major professors are clearly outlined in the Graduate College Handbook (online).

Note: Selection of the research supervisor as major professor (or at least co-major professor) facilitates streamlining the thesis and project research to develop synergies between the two major activities. Thesis work is over and above the minimum 20 hours per week commitment for a ½ time RA. However, with approval of the major professor and research supervisor, some overlap is allowed.

Appointing a Program of Study (POS) Committee

After choosing the major professor and establishing a home department, students should begin planning a suitable program for completion of graduate course work. Before the end of the first semester, students should appoint a graduate Program of Study (POS) Committee by filing a *Recommendation for Committee Appointment* form. This form is found at <http://www.grad-college.iastate.edu/deadline/formss.html>. The composition and responsibilities of the POS committee must be in accordance with the Graduate College guidelines.

The POS committee should include faculty whose knowledge and research interests can aid and complement the student's research interests, as well as faculty whose expertise will ensure that a breadth of knowledge on the committee. For M.S candidates, the POS committee must consist of at least three members of the Graduate Faculty. The major professor need not be a member of the student's home department. At least one member of the committee must be from outside the student's home department.

After the chosen members of the POS committee have agreed to serve, students should complete the *Recommendation for Committee Appointment* form, obtain the necessary signatures from prospective committee members, and submit it to the Graduate College for approval. On the form, under "Major," indicate: "Transportation." After official approval of the POS committee, copies of the form will be returned to the student and major professor.

IV. Academic Matters

Academic Calendar

The Transportation graduate program is a year-round program that includes Fall, Spring and Summer semesters. Students are expected to be registered and to participate in research and courses twelve months per year. Each student must obtain the required approval and notify the major professor and their supervisor prior to taking leave over periods that will interfere with the performance of normal duties.

Thesis Research Expectations

Transportation students are expected to develop an independent and creative approach to research through an interdisciplinary curriculum and research training from projects. From this education, students are expected to develop their master's thesis. "A master's thesis is a scholarly composition that demonstrates the ability of the author to do independent and creative work. It explores in some depth a problem or issue related to the major field of study"(from the *ISU Graduate College Handbook* <http://www.grad-college.iastate.edu/degree/chapter8.html>). For details concerning the writing of a thesis, see *Writing the Thesis* in the *Progressing Through the Degree Program* section of this handbook.

From master's level thesis work, it is expected that at least one original manuscript can be derived from the research for scholarly publication. Publication occurs at three levels: Journal level, Fully Refereed Conference paper, and Abstract Only Review of a paper/presentation/poster. Of these three levels, Journal publications are the highest and most desirable form of publication.

Background Coursework

All graduate students entering the Transportation program are expected to have a solid undergraduate background that can contribute to their transportation education. Students who have successfully completed the transportation program have had backgrounds in Business Administration, Engineering Science, Mechanical Engineering, Sociology, Political Science, Industrial Engineering, Urban Planning, and Civil Engineering. These are not prerequisite areas of undergraduate study; rather, they are a sampling of previous student's backgrounds.

Required Core Courses

All first year Transportation degree candidates should take all or most of the required core courses:

STAT 401 Statistical Methods for Research Workers (4 Cr Hrs)

Methods of analyzing and interpreting experimental and survey data. Statistical concepts and models; estimation; hypothesis tests with continuous and discrete data; simple and multiple linear regression and correlation; introduction to analysis of variance.

CE 551 Urban Transportation Planning (3 Cr Hrs)

Transportation data sources and cost analysis; transportation system management; travel demand and network modeling; transport legislation and financing; intelligent transportation systems planning; sustainable transportation concepts.

TRANS 555 Economic Analysis of Transportation Investments. (3 Cr Hrs)
 Application of economic analysis methodologies to evaluate transportation projects. Multi-modal approaches to evaluate impacts of transportation investments and maximize economic efficiency while considering equity and other social issues related to investment options.

(This course will be revised to include transportation research and experimental design. It will be offered in the fall each year, and should be taken as soon as possible, preferably during the student's first semester.)

TRANS 691 Seminar in Transportation Planning (3 Cr Hrs)
 Overview of current transportation issues; lecturers provide seminars of a variety of timely transportation topics.

TRANS 699 Thesis Research (6 Cr Hrs)

Other Approved Courses

In addition to the core degree requirements, students are required to take at least one course from each participating department (total of 6 credit hours). Students must also complete an additional 18 credit hours of coursework that is uniquely designed for the student. **A total of 36 credit hours must be completed to meet graduation requirements.** The courses available from each of the participating departments include:

Area A	Credits
CE 550. Advanced Highway Design	3
CE 552. Traffic Safety, Operations, and Maintenance	3
CE 553. Traffic Engineering	3
TRANS 555. Economic Analysis of Transportation Investments	3
CE 556. Air and Public Transportation Facilities	3
CE 557. Transportation Systems Analysis	3
CE 558. Transportation Systems Development and Management Lab	3
CE 559. Pavement Maintenance Management	3
Area B	
CRP 511. Introduction to Community and Regional Planning	3
CRP 521. Land Use Planning	3
CRP 525. Growth Management	3
CRP 542. Site Analysis and Development Design	3
CRP 545. Transportation Policy Planning	3
CRP 551. Introduction to Geographic Information Systems	3
CRP 552. Geographic Data Management and Planning Analysis	3
CRP 575. Urban Planning/Urban Management	3

Area C	
TrLog 461. Transportation Economics	3
TrLog 462. Transportation Carrier Management	3
TrLog 466. International Transportation and Logistics	3
TrLog 502 (or POM 502). Supply Chain Management	3
TrLog 520. Decision Models for Supply Chain Management	3
TrLog 560. Business Logistic Strategies	3
TrLog 561. Transportation Management and Policy	3

*Note that each course is not taught every semester. Please consult the ISU course catalog to determine course availability.

**Note: because of accreditation issues, students enrolled from outside the LOMIS department must obtain a graduate prerequisite waiver form from the College of Business – 308 Carver Hall. It is recommended that this form be completed as soon as possible following registration for a class.

After the First Year

- Students should fulfill remaining credit hours of coursework (Summer and Fall).
 - Establish the direction of their thesis research
 - Complete thesis research and composition (Final Semester)
- *It is advisable for students to complete all required coursework before their final semester. This allows for thesis credits (6) to be taken during the final semester without additional coursework. Students will have increased time for completing thesis activities without the distraction of coursework (papers, tests, etc.).

Required Seminars and Activities

Seminars

- TRANS 691 Seminar in Transportation Planning (3 Cr Hrs) When enrolled in the Transportation Seminar, students are expected to attend all weekly presentations. Students who have already completed the seminar are still strongly encouraged to attend in order to gain added exposure to the full breadth of transportation problems and career opportunities which exist.

Additional Activities

- In addition to seminar attendance, students are expected to write and submit one paper for the annual Midwest Transportation Consortium Scholars Conference, held each fall.
- Students enrolled in Transportation are expected (but not required) to be active in the Transportation Student Association (TSA). TSA is a student organization which undertakes many activities to further enhance the overall education of students enrolled in various transportation-related disciplines.

Graduate College Grade Requirements

A cumulative GPA of at least 3.0 is required by the Graduate College for one-half tuition support by the Graduate College. The grading scale at ISU is as follows: A (4.0), A- (3.67), B+ (3.33), B

(3.0), B- (2.67), C+ (2.33), C (2.0), C- (1.67), D+ (1.33), D (1), and F (0). Research grades (699, 697) do not count toward the GPA.

Language Requirements

Graduate English Requirements

- Native Speakers of English

All degree-seeking graduate students whose native language is English must fulfill a Graduate English Requirement by passing an objective English examination. This is a machine-scored test of English grammar, usage, and punctuation. The requirement must be satisfied **before completing 12 credit hours** of graduate work at ISU and before restricted or provisional admission can be changed to full admission status.

Performance on the objective English examination determines whether a student must take the written proficiency examination. In this examination, students are given one hour to complete an essay on an assigned topic. Students who fail this examination must take remedial action supervised by the Graduate English Examiner in the Department of English.

- Nonnative Speakers of English

Graduate students whose native language is not English and who do not have a bachelor's degree from ISU **must take the English Placement Test at the beginning of their first semester of enrollment**. This test is administered by the Department of English. It must be taken in addition to TOEFL (Test of English as a Foreign Language), which is taken as part of the admissions process. A student who does not pass this examination is assigned to one or more courses in the English 101 series. This course work must be completed during the first year of study.

Graduate students whose native language is not English but have an undergraduate degree from ISU, must take the Graduate English Examination for International Students, also administered by the Department of English at the beginning of their first semester of graduate work. Students who do not pass this test must complete English 101D during their first year of study.

Additional Educational Opportunities

Participation in Domestic and International Conferences and Symposia

Attendance and presentation of research results at professional meetings is an essential part of the Transportation graduate program. Students should attend at least one national or international meeting during their degree program. It is preferred that students attend conferences to present the results of their research, as well as to obtain knowledge and insights pertinent to their thesis research. Travel funding cannot be guaranteed, but several sources of funds are available for students. For additional information, see *Grants for Professional Travel* in *Section VII. Financial Matters*.

Transferability of Credits from Other Institutions

The transferability of credits from other institutions will be determined on a case-by-case basis by the student's POS committee and the Transportation Chair. To waive a course requirement, the student must send a memo signed by his or her major professor (on behalf of the POS committee) and the instructor of the course the student wishes to waive, to the Transportation

Chair. The memo must state that the student has already received satisfactory instruction in the subject matter covered by the required course. Credits for seminars, workshops and colloquia are not transferable.

Graduate Minor

A graduate minor in Transportation requires:

- completion of Tr 691 Seminar (3 credits)
- completion of at least 9 credits in courses listed under Core or Other Approved Courses, including at least 6 credits from one subject area and 3 credits from another area. The selected courses must be approved by the Program of Study Committee.

In addition:

- the planned POS must be reviewed by the Transportation Chair prior to POS committee approval
- at least one member of the POS committee be a Transportation faculty member
- application for minor must be made prior to PhD preliminary examination (if applicable)

V. Completing The Degree Program

The forms listed in this section can be found on the web at:

www.grad-college.iastate.edu/deadline/formss.html.

The Graduate College sets certain deadlines which must be met to successfully obtain a degree during a specific semester. Students are strongly encouraged to learn and make note of these dates during their planned semester of graduation. This information can be found at:

<http://www.grad-college.iastate.edu/deadline/deadlines.html#Thesis>.

The *Transportation Program Requirements Checklist*, included at the end of this document, summarizes the requirements of the Transportation program and provides a timetable for completion of degree requirements. Requirements for the M.S. degree established by the ISU Graduate College are summarized in the *ISU Graduate College Handbook*, available on the web at: www.grad-college.iastate.edu/degree/graduatecollegehandbook.html.

Generally, two years is the required timeframe for the completion of the Transportation degree. Degree fulfillment may take longer due to extenuating circumstances (e.g. data collection outside of student's control taking longer than expected).

First Year Activities

Activities completed during a student's first year in the Transportation program are described in *Section III. The First Year*.

POS Committee Meeting

During the first semester the student will have chosen a major professor and established a POS committee. The POS committee should meet to discuss the *Program of Study* prior to the student choosing second semester classes.

Approval of the Program of Study (POS)

After choosing major professor and establishing a POS committee, students must file a *Program of Study* form (<http://www.grad-college.iastate.edu/deadline/formss.html>). The Graduate College *Program of Study* form serves as a contract between the student and the Graduate College, indicating the minimum coursework that must be completed for the M.S. degree. *No changes can be made in the POS without approval of the POS committee and Graduate College.* The student should prepare a tentative *Program of Study* form in consultation with the major professor.

IMPORTANT: *The student and major professor should refer to the Transportation course requirements to ensure that the planned coursework: 1) meets all Transportation requirements, 2) meets all Graduate College requirements, and 3) is appropriate, based on the student's planned thesis research. The POS committee will approve the POS form if these conditions are met. If courses listed on the POS form do not meet all Transportation course requirements, the POS form will NOT be approved by the program chair (unless a memo of justification is provided by the POS committee).*

Thesis Proposal Meeting

A Thesis Proposal should be written summarizing the major objectives of the thesis research project and planned approaches to achieve these objectives. The written proposal should be viewed as a tool to help the student plan thesis research and to assist the POS committee members in understanding the proposed thesis and determining if it is appropriate. The thesis proposal should include:

- Problem statement
- Background
- Research methodology
- Expected results

Students should be prepared to make an oral presentation at the first POS committee meeting. Typically, the student describes the proposed research and solicits input from committee members. The POS committee is responsible for ensuring that the proposed research is appropriate and comprehensive. After the proposal meeting (within one month), the student is to prepare a written proposal to be approved by the major professor. This proposal should be completed at least five months prior to submission of thesis to committee for review.

Scheduling Committee Meetings

Students will be required to schedule three POS committee meetings throughout their academic career.

Meeting #1: Program Of Study. Timing: Before selection of second semester classes is best for the student. Must be scheduled no later than the end of the second semester. Student should prepare a draft POS form and bring copies to the meeting. The student should also select a thesis topic prior to this meeting (in consultation with the major professor). Students should be prepared to make a brief oral presentation at the first POS committee meeting. Typically, the student describes his or her academic background (undergraduate institution, previous degrees, research experience, research interests, career goals) during the first few minutes of the meeting. The student then briefly summarizes the proposed research and solicits input from committee members. The POS committee is responsible for ensuring that the proposed research project is interdisciplinary. In addition, the POS committee is responsible for ensuring that the POS coursework: 1) meets all Transportation MS requirements, 2) meets all Graduate College requirements, and 3) is appropriate, based on the student's planned research project. If no changes in the proposed POS are required, the meeting concludes with members of the committee signing the POS form. If changes are required, the student must modify the form and obtain signatures of POS committee members as soon as possible after the meeting. Immediately after the POS committee signatures are obtained, the student must submit the completed and signed POS form to the Graduate College. See "Approval of POS," above.

Meeting #2: Proposal. Timing: This meeting must be scheduled no later than 6 months prior to submission of thesis to committee for review. The student should prepare a power point (or similar) slide presentation and be prepared to consider major changes in direction as suggested by the committee. The student should realize that a major benefit of having a thesis committee is the interaction of that committee as they consider the student's proposal. The committee will help the student identify sound research methods and limit the scope to a reasonable level. See "Thesis Proposal Meeting," above.

Meeting #3: Final Defense. Timing: A MINIMUM of two weeks prior to this meeting, the full committee must receive a complete copy of the thesis for review. The major professor must be given a complete copy of the thesis at least one month prior to this meeting. See “Final Examination,” below.

Professors have busy schedules, and arranging for all POS members to be in the same place at the same time can be a daunting task. The following are some of the Do’s and Don’ts of arranging committee meetings.

The Wrong Way

Many students begin by picking a time which is convenient for them and then checking to see whether other POS members are free at that time. Usually members cannot make it at this time. Several rounds of phone calls and/or emails ensue until a suitable time is found. This process can go on for days, often testing the patience of the student and/or taking years off their lifespan.

The Right Way

The preferred approach to scheduling committee meetings is to consult with your major professor and pick four or five potential timeslots, then ask the remaining POS committee members which times they could be available to meet. Following the advice of the major professor, the student should indicate the expected duration of the planned meeting (usually about one to two hours) in the email message to POS committee members. This email request should be sent *several weeks prior* to the proposed date of the first POS meeting. Arrangements for the Proposal Meeting and Final Defense (which require longer time slots) should be made *at least one month in advance*. After obtaining faculty responses, the student should select a time when everyone can meet and a conference room is available for the meeting, and finally notify the POS committee members. The whole process should be *completed within two to three days* so that slots available during the initial inquiry remain available. Email is the most efficient method of communication. It is important (and courteous) to send an email reminder of the meeting time and place to POS committee members *two to three days prior* to the scheduled meeting.

Writing the Thesis

CTRE’s web page has several documents which will assist the student with thesis writing; they can be found at: <http://www.ctre.iastate.edu/education.htm>.

Preparing your thesis

- Tips on writing your thesis (PowerPoint document)
- A template for efficient thesis preparation (Word document)

The *ISU Thesis Manual* (www.grad-college.iastate.edu/deadline/thesismanual.html) provides details about thesis formats and other requirements.

Students should use the *First Submission Checklist* found at www.grad-college.iastate.edu/deadline/formss.html when the thesis is ready for submission.

*Note that students with Community Regional Planning as a home department must submit three copies of their completed thesis to the Graduate College.

Application for Graduation

By *midterm of the semester preceding* the semester of graduation, students must submit to the Graduate College an *Application for Graduation (Diploma Slip)* indicating the expected date of graduation, exact thesis title and other data. If a student does not graduate at the expected time, a new diploma slip must be submitted at a later time. Diploma slips are available at www.grad-college.iastate.edu/deadline/formss.html.

Final Examination

The Final Examination for the Transportation M.S. degree is an oral defense of the thesis. This includes a required formal seminar presentation of thesis research to interested faculty, students, and other members of the Iowa State academic community. This examination will review the thesis and the candidate's knowledge of relevant subjects.

Students should submit a *Request for Final Examination* form after thesis work has been completed and all the other requirements have been met. After receipt of this form, the Graduate College will send a *Report of Final Examination* form directly to the major professor. The major professor is responsible for bringing this form to the final oral examination.

After Graduation

Letters of Recommendation

When letters of recommendation are needed for future employment or grant proposals, students should directly contact faculty to ask whether they are willing to serve as referees. If so, students should provide the following:

- Plenty of advance notice (*at least three to four weeks*)
- A copy of the job ad or job description
- A current Curriculum Vitae
- An email reminder one week before the recommendation deadline

It is courteous (and wise) to send referees a complete numbered list of the letters needed, with deadlines clearly indicated AND pre-addressed labels. An electronic copy of this address list is usually appreciated.

Dismissal Criteria

A student may be dismissed, that is, removed from the degree program and not permitted to register as Transportation student, for the following reasons:

- Failure to progress satisfactorily in his/her degree program. This may be evidenced by a lack of research progress, a lack of aptitude or a failure to maintain satisfactory academic standing, as defined by the Iowa State University *Graduate College Handbook*.
 - Failure to progress will be determined by the student's major professor and chair of the Transportation program. The student must meet, at a minimum, once per semester with their major professor to discuss whether satisfactory progress is being maintained. The major professor will rate the progress of the student according to *satisfactory*, *marginal*, or *needs improvement (probation)*. Both the student and the chair will be informed of this ranking. The student will be allowed one semester of probation before being terminated.

- Lack of a major professor. Graduate degrees in Transportation are centered around mentored research projects, therefore a research mentor (major professor) is required. To maintain good standing and earn a degree in Transportation, a student must have a major professor. A major professor should be chosen during the first semester.
- Academic dishonesty. The proper conduct of research requires the highest standards of personal integrity. The University considers dishonesty in the classroom or in the conduct of research to be a serious offense. Students accused of academic dishonesty will be dealt with according to the procedures outlined in the *University Catalog* and the *Faculty Handbook*. Possible punishments can include dismissal from the program and expulsion from the University, depending on the severity of the offense.

Dismissal Procedures

A student's POS committee—or, if the student has no POS committee, the student's major professor,—can recommend dismissal of a student for any of the reasons listed above. Recommendations for dismissal are made to the Transportation Chair and are acted on by the Transportation Program Committee.

Procedures for dismissal are as described in the ISU *Graduate College Handbook*. Before a dismissal is decided, the Transportation Chair must give the student a written notice explaining why dismissal is being considered. The Chair must also discuss the situation with the student—as well as with the POS committee, major professor, temporary advisor, and/or Transportation Program Committee—in an attempt to find a satisfactory resolution. This discussion constitutes the “informal conference” as described in the *Graduate College Handbook*. If a satisfactory resolution cannot be reached and the Transportation Program Committee votes to dismiss the student, either party may bring the issue to the attention of the Associate Dean of the Graduate College for a decision. The student may appeal the decision of the Associate Dean, as described in the *Graduate College Handbook*.

Appeal Process

The University has established appeal processes for student grievances. These vary depending on the nature of the grievance, and are described in the *Graduate Handbook*. Generally, these procedures begin with the program chair or the appropriate DEO. It is usually best for all parties if a satisfactory resolution can be reached without initiating a formal appeal process. The Associate Dean of the Graduate College is available to informally consult with students and faculty.

VI. Student Resources

Center for Transportation Research and Education

<http://www.ctre.iastate.edu>

The Center for Transportation Research and Education (CTRE) is the focal point for transportation research and graduate education at Iowa State University. CTRE performs transportation research for public and private agencies and companies; manages its own education program for transportation students; and conducts local, regional, and national transportation services and continuing education programs. CTRE traces its roots to 1983 when it was established as one of the Federal Highway Administration's 10 original Rural Technical Assistance Programs (now Local Technical Assistance Programs).

The CTRE web site hosts a comprehensive set of materials for to assist the student in the pursuit of education and the conduct of research. The student is urged to become familiar with these materials. See <http://www.ctre.iastate.edu/education.htm>

Materials at this site include

- Graduate education in transportation
 - [Brochure](#) about various resources and opportunities for transportation-related graduate studies at Iowa State University.
 - How to Apply online <http://www.grad-college.iastate.edu/deadline/formss.html#Application>
 - [Admission requirements](#)
- Interdisciplinary M.S. degree in transportation
 - Program description for [M.S. degree in transportation](#)
 - Transportation MS Handbook (this document)
- Transportation Scholars program [requirements for participation](#)
- Funding graduate study
 - [Carstens and Ring scholarships](#)
 - Links to other financial aid opportunities, [Office of Student Financial Aid web site](#).
- [Transportation-related courses](#)
- Students who work at CTRE
 - [list of students](#)
 - [policies and procedures](#) for CTRE research assistants
 - [CTRE Student Handbook](#) a guide to employment with CTRE

Selected student resources

Conducting research

- [Overview of what research is](#)
- [Designing research](#)
- [Tips on how to conduct research](#)
- [How to search the World Wide Web](#)
- [Transportation Research Around the World on the Web](#)
- [How to cite resources from the Internet](#)
- [Research proposal guidelines](#)

Presenting your work

- [Oral presentations](#)
- [Weekly oral reports](#)
- [Written monthly reports](#)
- [Final written reports](#)
- [Effective written communication](#)

Working with others

- [Teamwork](#)
- [Interpersonal communication](#)

Preparing your thesis

- [Tips on writing your thesis](#)
- [A template for efficient thesis preparation](#)

Student Organizations

Transportation Student Association (TSA)

TSA strives to provide its members with real world information on transportation topics. TSA is multi-disciplinary and encompasses students from engineering, planning, and transportation & logistics. TSA serves as the parent organization for the student chapters of the Intelligent Transportation Society of America (ITS/A) and the Institute for Transportation Engineers (ITE). Speaker presentations are held bi-weekly to expose students to a wide variety of transportation-related topics. In addition, community service projects including Work Zone Safety presentations and Future Cities mentoring are also conducted. More information regarding TSA can be found at: <http://www.stuorg.iastate.edu/transa/>

Graduate Student Senate (GSS)

<http://www.stuorg.iastate.edu/general/GRADUATESTUDENTSENATE.html>

The Graduate Student Senate is an elected body whose mission is to represent the interests of Iowa State graduate students and to promote social interaction among graduate students. The GSS office is located in G44 Memorial Union, 294-8725.

VII. Financial matters

Graduate Appointments and Assistantships

The Center for Transportation Research and Education is closely affiliated with the Iowa Department of Transportation (also located in Ames) and many other transportation agencies and companies and generally provides students the opportunity to work on practical research issues.

Most (not all) students will be assigned to an externally funded research project lead by a faculty member or a senior professional researcher. For their work on the project they will be paid an assistantship. Their experience while work on a research project is a core element of the student's education and their contribution to the research effort should be significant. Students are encouraged to do their personal research on a topic related to the funded research project. In such cases it is expected that the student's personal research will investigate an issue that is beyond the scope of what otherwise would have been done for the funded project.

Because the students involvement in a research project is as much a part of their learning experience as their academic work in the classroom, their performance while working as a paid researcher will be taken into account when the student is evaluated and performance on funded research will be given equal importance to class room performance when the student's performance is evaluated each semester.

It is important for students to discuss their future graduate assistantship support with potential major professors. It is assumed a MS degree in Transportation will be obtained within two years, and assistantships will not be available beyond a two-year time frame. Financial constraints and program changes may result in adjustment in specific responsibilities and/or sources of funds during the period of appointment. .

Graduate research assistantships may be available through the Center for Transportation Research and Education, and research directed by individual faculty. The number of appointments varies from year to year. Most decisions regarding appointments for the following academic year are made by March 15 of each year. Most research assistantships are half-time assistantships; based on 20 hours of work per week. This work will be directed by the faculty or staff member in charge of the research project. Whenever possible, the research project the student is involved with will pertain to their thesis, however, additional tasks over the 20 hours per week will be necessary to for his/her thesis research.

Leave

The *Graduate College Handbook* states that:

Arrangements for a leave of absence are made between the graduate assistant and that assistant's supervisor. When a student employee needs to be absent either for personal reasons or illness, the supervisor should be understanding and accommodating to that need. At the same time, the graduate assistants should attempt to plan personal leave so that it does not interfere with or cause neglect of duties associated with his or her appointment. Supervisors of graduate assistants are responsible for ensuring that their assistants do not exceed reasonable limits for leave.

All ISU students with assistantship appointments are employees of ISU and, as such, are allowed the regular university holidays (New Year's Day, Martin Luther King Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day, plus one additional day each year determined by the university administration).

Important: Other university breaks, such as spring break and between semesters are working days unless arrangements are made in advance with the research supervisor.

Scholarships and Fellowships for Enrolled Students

For students meeting selected criteria, CTRE offers the Carstens and Ring scholarships.

Carstens and Ring scholarship opportunities

The Sam Carstens and Stan Ring CTRE/MTC Scholarships are available to qualified United States citizens with bachelor's degrees from a United States university, entering full-time graduate study in civil engineering (transportation emphasis) or transportation (interdisciplinary program), and supported at least 1/2 time on CTRE projects.

The award may be given twice to the same student if the student continues for a PhD in civil engineering (transportation emphasis).

Carstens Award:

- \$4000*
- undergraduate GPA requirement: 3.6

Ring Award

- \$2000*
- undergraduate GPA requirement: 3.3

*All awards are subject to availability of funds. If sufficient funds are not available at the time of the award, smaller awards may be provided.

Note for concurrent BS/MS students:

For students concurrently enrolled in the BS and MS civil engineering program, awards are made upon completion of all undergraduate requirements.

For information about other financial aid opportunities, see Iowa State University's Office of Student Financial Aid web site.

Grants for Professional Travel

Students should attend at least one national or international meeting during their degree program. Students are also strongly recommended to attend meetings to present results of their research as well as to obtain further knowledge concerning their thesis research.

Financial assistance may be available through *Professional Advancement Grants* from the Graduate College and the Graduate Student Senate, from major professors and home departments, CTRE, and in limited instances, Transportation Student Association.

Grants for Research

The Graduate Student Senate provides funds to support graduate student research. The Senate provides up to a maximum of \$300 to each person submitting a research proposal. The projects for these proposals must be unrelated to a student's thesis or dissertation research. It is appropriate for students to apply for these funds during their first year while exploring potential thesis research topics..

Benefits

Information about the student group plan medical insurance and the benefits of the mandatory health fee can be obtained from the Student Health Center (294-5801). Information about the Student Health Service also is available in the ISU General Catalog and on the web at www.public.iastate.edu/~health/homepage.html.

VIII. Appendix

Example Transportation M.S. Student Timeline Checklist		Completed
Upon arrival at ISU	Meet CTRE staff and students	
	Obtain ISUCard	
	Create email account	
	Discuss classes with faculty	
	Register with international Education Services (for international students)	
	Complete vaccinations (for international students)	
	Register for classes	
During First Semester	Complete Graduate English Exam	
	Determine Major Professor	
	Determine POS Committee Members	
	Complete Committee Appointment form and submit for approval	
	Discuss POS with major Professor and Committee	
	Complete POS form and submit for approval	
During Second Semester	Continue fulfillment of coursework requirements	
	Enroll in Trans691 Transportation Seminar	
During Third Semester	Continue fulfillment of coursework requirements	
	Establish Thesis research topic	
During Fourth Semester	Write Thesis Proposal and submit to committee members	
	Conduct Thesis Proposal meeting	
	Conduct Thesis Research/Composition	
	Complete coursework (excluding thesis credits)	
During Fifth Semester	Register for thesis credits	
	Complete Thesis Research/Composition	
	Apply for Graduation	
	Consult committee members well in advance of proposed defense to arrange a date	
	Submit Request for Final Oral Examination	
	Complete thesis and distribute to committee at least 2 weeks in advance of defense	
	Take thesis to Graduate College for Preliminary Format Check	
	Defend Thesis	
	Submit Necessary Number of Copies of Thesis to the Graduate College	

