

INDUSTRIAL ENGINEERING, PH.D.

The Department of Industrial and Systems Engineering offers opportunities for graduate study leading to the master of science and the doctor of philosophy degrees in industrial and systems engineering.

In the Ph.D. program, four areas of specialization are available, each designed to produce graduates capable of leading new and developing areas within industrial and systems engineering. The four areas are: decision science/operations research, health systems, human factors and ergonomics, and manufacturing and production systems.

The specialization in *decision science/operations research* trains students in analytical methodologies useful for solving decision problems, especially problems that involve the allocation of scarce resources, and the design, planning and operation of complex systems. Graduate study focuses on optimization modeling and algorithms, applied probability and stochastic modeling, and decision analysis.

The *health systems* specialization seeks to train students to look at broad issues in health care, including long-term care, prevention, quality improvement, health care financing, and system evaluation. Understanding how people solve problems is a basic requirement for health systems engineers, who must apply scientific methods in a value-laden setting.

The specialization in *human factors and ergonomics* is concerned with the quality of work lives, ergonomics, and occupational safety and health for both workers and management. By examining, designing, testing, and evaluating the workplace and how people interact within it, human systems engineers can create productive, safe, and satisfying work environments.

The specialization in *manufacturing and production systems* is intended to provide the skills and knowledge necessary to compete successfully in a manufacturing environment. These skills include knowledge of the theory of manufacturing materials and processes and their control; knowledge of the essentials of manufacturing systems design and analysis; and knowledge of and hands-on experience with modern manufacturing technology.

ADMISSIONS

Please consult the table below for key information about this degree program's admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program's website. Graduate admissions is a two-step process between academic programs and the Graduate School. **Applicants must meet** the minimum requirements (<https://grad.wisc.edu/apply/requirements/>) **of the Graduate School as well as the program(s)**. Once you have researched the graduate program(s) you are interested in, apply online (<https://grad.wisc.edu/apply/>).

Requirements	Detail
Fall Deadline	December 15
Spring Deadline	October 1
Summer Deadline	December 15

GRE (Graduate Record Examinations)	Required.
English Proficiency Test	Every applicant whose native language is not English or whose undergraduate instruction was not in English must provide an English proficiency test score and meet the Graduate School minimum requirements (https://grad.wisc.edu/apply/requirements/#english-proficiency).
Other Test(s) (e.g., GMAT, MCAT)	n/a
Letters of Recommendation Required	3

Students from any discipline that provides foundations for research in ISyE topics are encouraged to apply. For example, applicants may come from industrial, electrical, or mechanical engineering, or mathematics, statistics, computer science, psychology, or economics. Applicants are strongly advised to review the prerequisites for each area of specialization at the department website (<https://www.engr.wisc.edu/academics/graduate-academics/>).

Each application is judged on the basis of previous academic record, Graduate Record Exam (GRE) scores for the general test, three letters of recommendation, and the statement of purpose. Admission is very competitive and application deadlines are extremely important.

APPLICATION DEADLINES:

- **Fall:** Dec. 15th
- **Spring:** Oct. 1st
- **Summer:** Dec. 15th

Reentry applicants: July 15 (fall), December 1 (spring), and must notify an academic advisor.

Additional reentry information (<https://grad.wisc.edu/admissions/previouslyenrolled/>)

Note: *Although we accept summer applications we recommend applying for fall or spring as there are not many courses offered in the summer.*

APPLICATION REQUIREMENTS

Application deadlines are strictly enforced and ALL application materials including transcripts, GRE and TOEFL scores MUST be included and submitted by the application deadline.

***Please note our office does not provide feedback to applicants as to their potential for admission - please review both the ISyE department and Graduate School requirements for admission and if you feel you meet the necessary criteria for applying, please do so.**

1. Applicants must first meet all of the requirements of the Graduate School. Click here for more information about these requirements (<http://grad.wisc.edu/admissions/requirements/>).
2. Applicants must also meet department specific requirements as outlined below:
 - B.S. degree or equivalent

APPLICATION STEPS

1. **Fill out an** online application (<https://grad.wisc.edu/apply/>) through the Graduate School website and pay the application fee. (<https://grad.wisc.edu/admissions/faq/>)
2. **List three recommenders and their contact information as part of the online application.** An email will be sent to the recommender, asking that they submit their letter online using the Graduate School's recommendation form. Applicants can log back into their online application to re-send the email request if the recommender loses the email. Letters of recommendation must be submitted electronically.
3. Submit a Statement of Purpose (<https://grad.wisc.edu/prospective/prepare/statement/>) with your online application.
4. **TOEFL Exam Information: Ask ETS** (<https://www.ets.org/>) **to submit your GRE and/or TOEFL scores to the UW–Madison Graduate School (Institution Number 1846).** If you have your scores sent to UW–Madison, they will be available online to all departments to which you have applied. The institution code, therefore, is the only number needed. For more information please visit the Graduate School Requirements (<https://grad.wisc.edu/admissions/requirements/>) page. Please note: Exam information must be valid at start date of the semester that you are applying for (nonexpired).
5. **GRE Exam Information:** (<https://www.ets.org/gre/>) The IE graduate program requires the GRE exam be taken by prospective students as part of the application. **Note there are no specific scoring guidelines for the exam** as the GRE is only one part of consideration for admission into the program. Please note: Exam information must be valid at start date of the semester that you are applying for (nonexpired).
6. **Electronically submit one copy of your official transcript with your application.** Unofficial copies of transcripts will be accepted for review but official copies are required for admitted students.

NOTE: PLEASE DO NOT SEND MATERIALS/DOCUMENTS TO THE ISyE DEPARTMENT OR GRADUATE SCHOOL UNTIL YOU ARE RECOMMENDED FOR ADMISSIONS. ALL DOCUMENTS SHOULD BE UPLOADED WITH YOUR APPLICATION.

QUESTIONS?

Check out the Admissions FAQ or contact us at iegradadmission@engr.wisc.edu.

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (<https://grad.wisc.edu/funding/>) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.

PROGRAM RESOURCES

All ISyE PhD students are provided funding and tuition remission, provided they are making satisfactory academic progress. This funding may be in the form of a teaching assistant, research assistant, or project assistant position, or as an external fellowship. The type position providing the funding support may change from semester to semester and is determined based on a combination of factors including the

availability of research funds by the student's faculty advisor and the need for teaching assistants in ISyE courses.

REQUIREMENTS FOR STUDENTS ASSIGNED TEACHING ASSISTANT POSITIONS

Students hired into a TA position are required to attend the New Educator Orientation (NEO) training in late August. For more details, please see this website.

All international students assigned to a teaching assistant position must meet the UW–Madison Graduate School's requirement for spoken English. This requirement can be fulfilled in two ways:

- Pass the SPEAK—you can register for the SPEAK test through Aaron Webster in Room 3180 ME, aaron.webster@wisc.edu.
- Receive a 26 or higher on the speaking portion of the TOEFL test (or equivalent). Provide a copy of your score to Aaron Webster in Room 3107 ME, aaron.webster@wisc.edu

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (<http://guide.wisc.edu/graduate/#policiesandrequirements>), in addition to the program requirements listed below.

MAJOR REQUIREMENTS

MODE OF INSTRUCTION

Face to Face	Evening/ Weekend	Online	Hybrid	Accelerated
Yes	No	No	No	No

Mode of Instruction Definitions

Accelerated: Accelerated programs are offered at a fast pace that condenses the time to completion. Students are able to complete a program with minimal disruptions to careers and other commitments.

Evening/Weekend: Courses meet on the UW–Madison campus only in evenings and/or on weekends to accommodate typical business schedules. Students have the advantages of face-to-face courses with the flexibility to keep work and other life commitments.

Face-to-Face: Courses typically meet during weekdays on the UW-Madison Campus.

Hybrid: These programs combine face-to-face and online learning formats. Contact the program for more specific information.

Online: These programs are offered 100% online. Some programs may require an on-campus orientation or residency experience, but the courses will be facilitated in an online format.

CURRICULAR REQUIREMENTS

Requirements Detail

Minimum Credit Requirement	51 credits
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Minimum Residence Credit Requirement	32 credits
Minimum Graduate Coursework Requirement	Half of degree coursework (26 credits out of 51 total credits) must be completed graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university's Course Guide.
Overall Graduate GPA Requirement	3.00 GPA required.
Other Grade Requirements	Grades of C and D received by a candidate in any graduate course will not be counted as credit toward the degree. These grades will be counted in the graduate GPA. See additional grade requirement for HFE Ph.D. students below.
Assessments and Examinations	Qualifying exams, preliminary exams, and a final dissertation defense are required of all students. Details may be found in the program handbook.
Language Requirements	No language requirements.
Doctoral Minor/Breadth Requirements	All doctoral students are required to complete a minor. The program also has additional breadth requirements. See details below.

REQUIRED COURSES

Students choose one of the following research areas (<https://www.engr.wisc.edu/department/industrial-systems-engineering/research-in-industrial-systems-and-engineering/>). Work with your faculty advisors to answer any questions and to form a plan of study.

Decision Science/Operations Research Area ¹

Code	Title	Credits
Courses Recommended for DS/OR Qualifying Exam:		
I SY E/COMP SCI/ E C E 524	Introduction to Optimization	3
I SY E/COMP SCI/ MATH/STAT 525	Linear Optimization	3
I SY E 620	Simulation Modeling and Analysis	3
I SY E 624	Stochastic Modeling Techniques	3
I SY E/MATH/OTM/ STAT 632	Introduction to Stochastic Processes	3
I SY E/COMP SCI/ MATH 728	Integer Optimization	3
Courses Recommended for Optimization Qualifying Exam:		
I SY E/COMP SCI/ E C E 524	Introduction to Optimization	3
I SY E/COMP SCI/ MATH/STAT 525	Linear Optimization	3
I SY E/COMP SCI/ MATH/STAT 726	Nonlinear Optimization I	3
I SY E/COMP SCI/ MATH 728	Integer Optimization	3
I SY E/COMP SCI/ MATH 730	Nonlinear Optimization II	3
Other Suggested Courses:		

I SY E 412	Fundamentals of Industrial Data Analytics	3
I SY E/COMP SCI/ MATH 425	Introduction to Combinatorial Optimization	3
I SY E/M E 512	Inspection, Quality Control and Reliability	3
I SY E 516	Introduction to Decision Analysis	3
I SY E 517	Decision Making in Health Care	3
I SY E 575	Introduction to Quality Engineering	3
I SY E 603	Special Topics in Engineering Analytics and Operations Research	1-3
I SY E 604	Special Topics in Manufacturing and Supply Chain Management	1-3
I SY E 612	Information Sensing and Analysis for Manufacturing Processes	3
I SY E/MATH/OTM/ STAT 632	Introduction to Stochastic Processes	3
I SY E 645	Engineering Models for Supply Chains	3
I SY E/ COMP SCI 719	Stochastic Programming	3
I SY E/ COMP SCI 723	Dynamic Programming and Associated Topics	3
I SY E/ COMP SCI 727	Convex Analysis	3

¹ These tracks are internal to the program and represent different pathways a student can follow to earn this degree. Track names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

Health Systems Engineering Research Area ¹

Code	Title	Credits
Highly Recommended Courses:		
I SY E 417	Health Systems Engineering	3
I SY E 517	Decision Making in Health Care	3
I SY E/ MED PHYS 559	Patient Safety and Error Reduction in Healthcare	2
I SY E 606	Special Topics in Healthcare Systems Engineering	1-3
I SY E/B M I 617	Health Information Systems	3
I SY E/ POP HLTH 703	Quality of Health Care: Evaluation and Assurance	1-3
Other Suggested Courses:		
I SY E 412	Fundamentals of Industrial Data Analytics	3
I SY E 415	Introduction to Manufacturing Systems, Design and Analysis	3
I SY E 555	Human Performance and Accident Causation	3
I SY E 575	Introduction to Quality Engineering	3
I SY E 601	Special Topics in Industrial Engineering ²	1-3
I SY E/ PHARMACY 608	Safety and Quality in the Medication Use System	3
I SY E 615	Production Systems Control	3

I SY E 620	Simulation Modeling and Analysis	3
I SY E 624	Stochastic Modeling Techniques	3
I SY E/M E 643	Performance Analysis of Manufacturing Systems	3
I SY E/PSYCH 653	Organization and Job Design	3
I SY E/M H R 729	Behavioral Analysis of Management Decision Making	3
I SY E/POP HLTH 875	Cost Effectiveness Analysis in Health and Healthcare	3
B M I/COMP SCI 576	Introduction to Bioinformatics	3
B M I 773	Clinical Research Informatics	3
B M I/COMP SCI 776	Advanced Bioinformatics	3

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² Topics vary for this course. Obtain advance approval from your faculty advisor.

Manufacturing and Production Systems Research Area ¹

Code	Title	Credits
Possible Courses:		
I SY E 412	Fundamentals of Industrial Data Analytics	3
I SY E 415	Introduction to Manufacturing Systems, Design and Analysis	3
I SY E/M E 510	Facilities Planning	3
I SY E/M E 512	Inspection, Quality Control and Reliability	3
I SY E/M E 513	Analysis of Capital Investments	3
I SY E 515	Engineering Management of Continuous Process Improvement	3
I SY E 575	Introduction to Quality Engineering	3
I SY E 601	Special Topics in Industrial Engineering ²	1-3
I SY E 603	Special Topics in Engineering Analytics and Operations Research	1-3
I SY E 604	Special Topics in Manufacturing and Supply Chain Management	1-3
I SY E 605	Computer Integrated Manufacturing	3
I SY E 612	Information Sensing and Analysis for Manufacturing Processes	3
I SY E 615	Production Systems Control	3
I SY E/M E 641	Design and Analysis of Manufacturing Systems	3
I SY E/M E 643	Performance Analysis of Manufacturing Systems	3
I SY E 645	Engineering Models for Supply Chains	3
STAT/M E 424	Statistical Experimental Design	3
I SY E 816	Special Topics in Systems Design	1-3
I SY E 823	Special Topics in Operations Research	1-3

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not appear in the Graduate School admissions application, and they will not appear on the transcript.

² Topics vary for this course. Obtain advance approval from your faculty advisor.

Quality Engineering Research Area ¹

Code	Title	Credits
Possible Courses:		
I SY E 412	Fundamentals of Industrial Data Analytics	3
I SY E 417	Health Systems Engineering	3
I SY E/M E 512	Inspection, Quality Control and Reliability	3
I SY E/M E 513	Analysis of Capital Investments	3
I SY E 515	Engineering Management of Continuous Process Improvement	3
I SY E 520	Quality Assurance Systems	3
I SY E 575	Introduction to Quality Engineering	3
I SY E 601	Special Topics in Industrial Engineering ²	1-3
I SY E 612	Information Sensing and Analysis for Manufacturing Processes	3
I SY E 620	Simulation Modeling and Analysis	3
I SY E/M E 641	Design and Analysis of Manufacturing Systems	3
I SY E/PSYCH 653	Organization and Job Design	3
I SY E/PSYCH 854	Special Topics in Organization Design	1-3
M H R 700	Organizational Behavior	3
OTM 770	Sustainable Approaches to System Improvement	4
OTM 758	Managing Technological and Organizational Change	3
STAT 333	Applied Regression Analysis	3
STAT 349	Introduction to Time Series	3
STAT 411	An Introduction to Sample Survey Theory and Methods	3
STAT 421	Applied Categorical Data Analysis	3
STAT 701	Applied Time Series Analysis, Forecasting and Control I	3
STAT/MATH 803	Experimental Design I	3
STAT 849	Theory and Application of Regression and Analysis of Variance I	3

¹ These tracks are internal to the program and represent different pathways a student can follow to earn this degree. Track names do not appear in the Graduate School admissions application, and they will not appear on the transcript.

² Topics vary for this course. Obtain advance approval from your faculty advisor.

Human Factors and Ergonomics Research Area ¹

Code	Title	Credits
Possible Courses:		
I SY E/COMP SCI/DS 518	Wearable Technology	3

ISY E 552	Human Factors Engineering Design and Evaluation	3
ISY E 555	Human Performance and Accident Causation	3
ISY E/ MED PHYS 559	Patient Safety and Error Reduction in Healthcare	2
ISY E/B M E 564	Occupational Ergonomics and Biomechanics	3
ISY E 601	Special Topics in Industrial Engineering ²	1-3
ISY E 602	Special Topics in Human Factors	3
ISY E/PSYCH 653	Organization and Job Design	3
ISY E/B M E 662	Design and Human Disability and Aging	3
ISY E 699	Advanced Independent Study ²	1-5
ISY E/PSYCH 854	Special Topics in Organization Design ²	1-3
ISY E/PSYCH 859	Special Topics in Human Factors Engineering	1-3
ISY E 961	Graduate Seminar in Industrial Engineering ²	1-3
CIV ENGR 679	Special Topics in Transportation and City Planning	3

Tools and Methods Courses³

HFE Ph.D. students must complete an additional coursework and exam component.

HFE Course Requirement

Code	Title	Credits
To take the qualifying exam, a student will have to have received a grade of AB or better in at least 3 credits in each of the three areas below. Courses taken during undergraduate studies can be used to satisfy this requirement:		
Cognitive Ergonomics:		
ISY E 555	Human Performance and Accident Causation	3
ISY E/ MED PHYS 559	Patient Safety and Error Reduction in Healthcare	2
ISY E 601	Special Topics in Industrial Engineering ²	1-3
ISY E 602	Special Topics in Human Factors ²	3
ISY E 699	Advanced Independent Study ²	1-5
ISY E/PSYCH 859	Special Topics in Human Factors Engineering ²	1-3
Sociotechnical Systems / Macroergonomics:		
ISY E 555	Human Performance and Accident Causation	3
ISY E/ MED PHYS 559	Patient Safety and Error Reduction in Healthcare	2
ISY E/PSYCH 653	Organization and Job Design ²	3
ISY E 601	Special Topics in Industrial Engineering ²	1-3
ISY E 602	Special Topics in Human Factors ²	3
ISY E 699	Advanced Independent Study ²	1-5

ISY E/PSYCH 854	Special Topics in Organization Design ²	1-3
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Physical Ergonomics:

ISY E 555	Human Performance and Accident Causation	3
ISY E/B M E 564	Occupational Ergonomics and Biomechanics	3
ISY E/B M E 662	Design and Human Disability and Aging	3
ISY E 601	Special Topics in Industrial Engineering ²	1-3
ISY E 602	Special Topics in Human Factors ²	3
ISY E 699	Advanced Independent Study ²	1-5
ISY E/PSYCH 854	Special Topics in Organization Design ²	1-3

- These tracks are internal to the program and represent different pathways a student can follow to earn this degree. Track names do not appear in the Graduate School admissions application, and they will not appear on the transcript.
- Topics vary for this course. Obtain advance approval from your faculty advisor.
- Various courses in the categories of Research Methods, Statistics, Qualitative Research, Biomechanics Methods, and Psychology count as "Tools and Methods." The Human Factors and Ergonomics faculty group updates the list of "Tools and Methods" courses, and advisors decide which set of courses are appropriate for each student. Work with your faculty advisor regarding non-ISY E course work.

Prior to defending their dissertation, HFE Ph.D. students must complete at least six seminar/special topics courses at the 700 level or above totaling a minimum of 12 credits; at least 6 credits of these must be in the Human Factors and Ergonomics area. Seminar credits outside the Human Factors and Ergonomics area may be used to satisfy the Industrial Engineering Breadth requirement. Other courses may qualify. Students may submit courses to the HFE Area group for consideration. Transfer students should submit a course syllabus or description and transcript for any courses from other institutions that they would like to have considered for satisfaction of this requirement. The HFE Area group will make this decision.

Additional Breadth Requirements for all ISyE PhD Students

- Colloquium/Lecture Series: For at least two semesters, students must regularly attend a colloquium series. The appropriate colloquium series must be approved by the student's faculty adviser. It is not required to meet this requirement by registering for a course (indeed some colloquium series have no associate course). Instead, attendance at the approved colloquium series must be confirmed by the student's faculty adviser when the student submits their PhD Plan of Study prior to their preliminary examination. Example of colloquium series that can be used to meet this requirement include the ISyE Colloquia and the Systems, Information, Learning and Optimization (SILO) seminars.
- Industrial Engineering Breadth Requirement: The breadth requirement is to make sure the Ph.D. student achieves minimum competence in multiple areas of industrial and systems engineering. It consists of taking at least two courses (6 credits) in two different areas outside of the student's focus area. Students can choose from a select set of courses and must attain a grade of B or above in both courses. The courses selected by the student must be approved by the student's

adviser. These courses must be completed before a Ph.D. student can request their Preliminary Warrant. Courses the student has taken before entering the Ph.D. program can be counted toward this breadth requirement, including courses taken as an undergraduate. Students should submit the course title and syllabus to the student services coordinator who will then seek approval from the chair of graduate affairs.

POLICIES

GRADUATE SCHOOL POLICIES

The Graduate School's Academic Policies and Procedures (<https://grad.wisc.edu/acadpolicy/>) provide essential information regarding general university policies. Program authority to set degree policies beyond the minimum required by the Graduate School lies with the degree program faculty. Policies set by the academic degree program can be found below.

MAJOR-SPECIFIC POLICIES

PRIOR COURSEWORK

Graduate Work from Other Institutions

Not allowed for graduate residence credit requirement but allowed for graduate degree credit requirement and graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

UW–Madison Undergraduate

Not allowed for graduate residence credit requirement for master's thesis option or the Ph.D. track but allowed up to 6 credits numbered 300 level or above toward the graduate degree credit requirement for master's course option tracks but not toward the 50% graduate coursework except for 700 level or above courses. Coursework earned five or more years prior to admission to a master's degree is not allowed to satisfy requirements.

UW–Madison University Special

Allowed up to 15 credits numbered 300 or above toward graduate residence credit requirement and graduate degree credit requirement. If the courses were numbered 700 or above they may count toward the minimum graduate coursework (50%) requirement. Coursework earned ten or more years prior to admission to a doctoral degree is not allowed to satisfy requirements.

PROBATION

Students who are admitted with deficiencies but do not complete these courses within the first year are subject to probation.

ADVISOR / COMMITTEE

Every graduate student is required to have an advisor. A faculty advisor provides the graduate student with academic guidance regarding their course selection and research oversight in their dissertation.

Graduate students should always seek advice from their advisor prior to enrolling for courses.

Many PhD students are assigned a faculty advisor when they are admitted to the program, based on a match between their research interests and those of the assigned advisor. Some PhD students are not initially matched to a faculty advisor for their research when admitted. Such students are advised by the associate chair for graduate studies

in their first year. During their first year, these students explore research possibilities with different faculty in the department and choose a faculty advisor by the end of the first year.

Changing advisors during the graduate program may be necessary due to changes in a student's interests or changes in the funding sources for their support. Students should discuss an advisor change with the faculty in their interest area and request a change of advisor with the ISyE Student Services in Room 3182 in Mechanical Engineering Building.

Ph.D. Committee

Attainment of a Ph.D. degree requires the preparation of a thesis on a research topic selected by the student and their advisor. Once a research project is selected, the student must choose his or her thesis committee*. The ISyE Graduate Program requires the thesis committee shall **consist of at least four members for the Preliminary Exam Committee and at least five members for the Final Ph.D. Defense Committee** including:

- The Committee Chair (the student's primary advisor). The Committee Chair must be an ISyE faculty. Emeritus faculty cannot serve as the Committee Chair.
- Three other graduate faculty members or former UW-Madison graduate faculty up to one year after resignation or retirement with two faculty members having their tenure home in ISyE.
- All Committee members are required to be readers.
- The dissertation committee must consist of at least 5 members (4 members for prelim exam) and meet the requirements set forth by the Graduate School, including for example, at least one of the members of the committee must be from a UW-Madison program outside the Industrial and Systems Engineering Department.
- The fifth member of the committee, as well as any additional members, may be from any of the following categories: graduate faculty, faculty from a department without a graduate program, academic staff (including emeritus faculty), visiting faculty, faculty from other institutions, scientists, research associates, and other individuals deemed qualified by the executive committee (or its equivalent).

CREDITS PER TERM ALLOWED

Enrollment of 12 credits or less recommended. (Full time status considered 8-12 credits).

TIME CONSTRAINTS

The qualifying examination requirement must be satisfied by the end of the fifth semester of enrollment after entering the ISyE graduate program.

The preliminary exam must be completed within 4 years of joining the ISyE graduate program, and within 3 years of passing the qualifying exam.

The dissertation defense must be completed either within two years after passing the preliminary exam or by the end of the 6th year in the graduate program, whichever is later.

Exceptions to these time limits may be granted by the Academic Affairs Cluster through a petition process.

GRIEVANCES AND APPEALS

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (<https://doso.students.wisc.edu/bias-or-hate-reporting/>)

- Graduate Assistantship Policies and Procedures (<https://hr.wisc.edu/policies/gapp/#grievance-procedure>)
- Hostile and Intimidating Behavior Policies and Procedures (<https://hr.wisc.edu/hib/>)
 - Office of the Provost for Faculty and Staff Affairs (<https://facstaff.provost.wisc.edu/>)
- Dean of Students Office (<https://doso.students.wisc.edu/>) (for all students to seek grievance assistance and support)
- Employee Assistance (<http://www.eao.wisc.edu/>) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (<https://employee disabilities.wisc.edu/>) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (<https://grad.wisc.edu/>) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (<https://compliance.wisc.edu/>) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (<https://conduct.students.wisc.edu/>) (for conflicts involving students)
- Ombuds Office for Faculty and Staff (<http://www.ombuds.wisc.edu/>) (for employed graduate students and post-docs, as well as faculty and staff)
- Title IX (<https://compliance.wisc.edu/titleix/>) (for concerns about discrimination)

Grievance Procedures: Industrial and Systems Engineering

If a graduate student feels unfairly treated or aggrieved by faculty, staff, or another student, the University offers several avenues to resolve the grievance. Student's concerns about unfair treatment are best handled directly with the person responsible for the objectionable action. If the student is uncomfortable making direct contact with the individual(s) involved, they should contact the advisor or the person in charge of the unit where the action occurred (program or department chair, section chair, lab manager, etc). Many departments and schools/colleges have established specific procedures for handling such situations; check their web pages and published handbooks for information. If such procedures exist at the local level, these should be investigated first. For more information, see the College of Engineering Policies and Procedures (<https://www.engr.wisc.edu/academics/student-services/academic-advising/policies-and-procedures/>). The Assistant Dean for Graduate Affairs (engr-dean-graduateaffairs@engr.wisc.edu) provides overall leadership for graduate education in the College of Engineering (CoE), and is a point of contact for graduate students who have concerns about education, mentoring, research, or other difficulties.

Procedures for handling graduate student grievances against ISyE faculty, staff, or students:

1. The student is encouraged to speak first with the person toward whom the grievance is directed to see if a situation can be resolved at this level.
2. Should a satisfactory resolution not be achieved, the student should contact the Associate Chair for Graduate Affairs, to discuss the grievance. The Associate Chair will facilitate problem resolution through informal channels and facilitate any complaints or issues of students. The first attempt is to help students informally address

the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns or difficulties, if necessary. University resources for sexual harassment, discrimination, disability accommodations, and other related concerns can be found on the UW Office of Compliance website (<https://compliance.wisc.edu/>).

3. If the issue is not resolved to the student's satisfaction, the student can submit the grievance to the Department Chair. The grievance should be submit in writing, within 60 calendar days of the alleged unfair treatment.
4. On receipt of a written complaint, the Department Chair will form a faculty committee that will review the complaint and gather further information as necessary from the filer of the complaint and other parties involved (including the party toward whom the complaint is directed).
5. The faculty committee will determine a decision regarding the grievance. The Department Chair will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.
6. At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal to the College of Engineering Assistant Dean for Graduate Affairs (engr-dean-graduateaffairs@engr.wisc.edu). Either party has 10 working days to file a written appeal to the School/College.
7. Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.
8. The Graduate School has procedures for students wishing to appeal a grievance decision made at the school/college level. These policies are described in the Graduate School Academic Policies and Procedures - Grievances & Appeals (<https://grad.wisc.edu/documents/grievances-and-appeals/>).

OTHER

n/a

PROFESSIONAL DEVELOPMENT

GRADUATE SCHOOL RESOURCES

Take advantage of the Graduate School's professional development resources (<https://grad.wisc.edu/pd/>) to build skills, thrive academically, and launch your career.

PROGRAM RESOURCES

THE INDIVIDUAL DEVELOPMENT PLAN (HTTPS://GRAD.WISC.EDU/PD/IDP/)

An Individual Development Plan helps with self-assessment, planning, and communication:

- An IDP can help you communicate your professional development and career planning needs and intentions to others including your mentor, which can lead to helpful advice and resources.

- You can use the IDP to make sure you and your mentor's expectations are clearly outlined and in agreement so that there are no big surprises, particularly at the end of your training.
- The current job market is challenging and research has shown that individuals who perform structured career planning achieve greater career success and satisfaction.

The onus to engage in the IDP process is on you – although your mentor, PI, or others may encourage and support you in doing so. The IDP itself remains private to you, and you choose which parts to share with which mentors. Through the IDP process, you may decide to identify various mentors to whom you can go for expertise and advice.

ENGINEERING CAREER SERVICES (HTTPS://ECS.WISC.EDU/)

Julie Rae, Assistant Director for Graduate Student Career Services

GRADUATE students in all Engineering programs

- Resumes & Cover Letters <https://ecs.wisc.edu/students/resumes-and-cover-letters/>
- Job Search Strategies
- Job Offers & Negotiation <https://ecs.wisc.edu/students/offers-and-negotiation/>
- CPT for Graduate Students <https://ecs.wisc.edu/students/co-op-and-internship/>
- Student appointments: Click Here (<http://go.wisc.edu/ecs-grad-appt/>) to schedule an appointment with ECS.

Employer Recruitment List for Industrial Engineering Students: <https://ecs.wiscweb.wisc.edu/wp-content/uploads/sites/86/2017/03/IE-Employer-Recruitment-List-17-18.pdf>

UW WRITING CENTER (HTTP://WRITING.WISC.EDU/)

Location: 6171 Helen C. White Hall

Tel: (608) 263-1992

The UW Writing Center provides free of charge face-to-face and online consultations that focus on a number of different writing scenarios (i.e. drafts of course papers, resumes, reports, application essays, cover letters, theses, etc). Writing Center instructors will not edit or proofread papers. Instead, their goal is to teach students to edit and proofread on their own in order to become a better, more confident writer.

LEARNING OUTCOMES

1. Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within industrial and systems engineering.
2. Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the industrial and systems engineering.
3. Creates research, scholarship, or performance that makes a substantive contribution to the industrial and systems engineering field.
4. Demonstrates breadth within their learning experiences.
5. Advances contributions of the field of industrial and systems engineering to society.

6. Communicates complex ideas in a clear and understandable manner to variety of audience.
7. Fosters ethical and professional conduct.

PEOPLE

PROFESSORS

Jeffrey Linderoth (Chair)
Oguzhan Alagoz
Laura Albert
John D. Lee
Jingshan Li
James Luedtke
Robert Radwin
Leyuan Shi
Raj Veeramani
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Hannah Silber
Tina Xu

UNDERGRADUATE ADVISORS

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Francisca Jofre
Maria Zarzalejo Camejo

GRADUATE PROGRAM COORDINATOR

Pam Peterson

See also Industrial and Systems Engineering Faculty Directory (<http://directory.engr.wisc.edu/ie/faculty/>).