

INDUSTRIAL ENGINEERING, M.S.

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.

The Department offers three distinct master of science programs. The Master of Science in Industrial Engineering research program is designed for students wishing to conduct research during their program. More information about the research program can be found here (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/>).

The two course-based named option programs in the MS-IE, Human Factors and Health Systems Engineering M.S. (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-human-factors-health-systems-engineering-ms/>) and Systems Engineering and Analytics M.S. (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-systems-engineering-analytics-ms/>), are accelerated programs that can be completed in one full year of study and are designed for students wishing to pursue a career in industry or government.

The department also offers a graduate/professional certificate in Patient Safety (<http://guide.wisc.edu/graduate/industrial-systems-engineering/patient-safety-graduate-professional-certificate/>). This certificate is an interdisciplinary effort between the Department of Industrial and Systems Engineering, School of Nursing, School of Pharmacy, Department of Medical Physics, and Department of Population Health Sciences.

ADMISSIONS

Students apply to the Master of Science in Industrial Engineering through one of the named options:

- Human Factors and Health Systems Engineering (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-human-factors-health-systems-engineering-ms/>)
- Research (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/>)
- Systems Engineering and Analytics (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-systems-engineering-analytics-ms/>)

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 FINANCIAL ASSISTANCE

If you choose to attend UW–Madison and plan to pursue funding on your own, the following sites could be very helpful:

- Graduate School Funding Resources (<https://grad.wisc.edu/studentfunding/prospective/>)
- Graduate School Costs and Funding (<https://grad.wisc.edu/studentfunding/currentstudents/>)
- Tuition & Fees (https://registrar.wisc.edu/tuition_&_fees.htm)

TO APPLY FOR TA OR GRADER POSITION

- Teaching Assistant (https://docs.google.com/forms/d/e/1FAIpQLSeT-Q1ISnemo4RBjJMNQgrohsFHpT7DoWivVK8_ot-iYce16Q/viewform?usp=sf_link)
- Grader (https://docs.google.com/a/wisc.edu/forms/d/e/1FAIpQLSeh-wQWWIXqp_y_GF_utRk9Tv-8Lmy9-0LKU83xWRcsjJiAGA/viewform/)

Application Process:

Teaching assistant and grader positions are appointed each semester. New TAs must submit an application each semester in order to be considered. If you currently are a TA in Industrial and Systems Engineering, you do not need to complete an application each semester.

The number of positions is limited, and the application process is highly competitive. Priority is given to those with current positions who are in good standing and would like to continue teaching. Only after these positions are filled do we look at other applicants. The number of new positions available each semester is generally low, especially in the spring. While this should not deter you from applying, please keep it in mind when planning for the semester.

The department will consider graduate students from other departments only when there are no qualified applicants from the Department of Industrial and Systems Engineering.

Expected timing for appointments:

Appointments for teaching assistants are generally made in August for the fall semester and in early December for the spring semester. Grader appointments are appointed along a similar timeline, but often a few weeks later.

Once hired:

Students hired into a TA position are required to attend the New Educator Orientation (NAO) training in late August. For more details, please see this website (<http://ceete.engr.wisc.edu/ta-training/>).

Speaking requirements for international students:

All international students applying for teaching assistant positions must meet the UW–Madison Graduate School's requirement ([https://www.google.com/url?q=https%3A%2F%2Fkb.wisc.edu%2Fpage.php%3Fid%3D25268&sa=D&sntz=1&usg=AFQjCNGc8qLuqvUy99uLQF5zTnKMZmhBvA\)for](https://www.google.com/url?q=https%3A%2F%2Fkb.wisc.edu%2Fpage.php%3Fid%3D25268&sa=D&sntz=1&usg=AFQjCNGc8qLuqvUy99uLQF5zTnKMZmhBvA)for) spoken English BEFORE they can be considered as a TA. This requirement can be fulfilled in two ways:

1. Pass the SPEAK (<https://esl.wisc.edu/ita-training/speak/>)—you can register for the SPEAK test through Aaron Webster in Room 3107 ME, aaron.webster@wisc.edu.
2. 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 CURRICULAR REQUIREMENTS

Requirements Detail

Minimum Credit Requirement 30 credits

Minimum Residence Credit Requirement 16 credits

Minimum Graduate Coursework Requirement Half of degree coursework (15 credits out of 30 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 (<https://registrar.wisc.edu/course-guide> (<https://registrar.wisc.edu/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.

Assessments and Examinations None.

Language Requirements No language requirements.

REQUIRED COURSES

Select a Named Option (p. 2) for courses required.

NAMED OPTIONS

A named option is a formally documented sub-major within an academic major program. Named options appear on the transcript with degree conferral. Students pursuing the Master of Science in Industrial Engineering must select one of the following named options:

View as listView as grid

- INDUSTRIAL ENGINEERING: HUMAN FACTORS AND HEALTH SYSTEMS ENGINEERING, M.S. ([HTTP://GUIDE.WISC.EDU/GRADUATE/INDUSTRIAL-SYSTEMS-ENGINEERING/INDUSTRIAL-ENGINEERING-MS/INDUSTRIAL-ENGINEERING-HUMAN-FACTORS-HEALTH-SYSTEMS-ENGINEERING-MS/](http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-human-factors-health-systems-engineering-ms/))
- INDUSTRIAL ENGINEERING: RESEARCH, M.S. ([HTTP://GUIDE.WISC.EDU/GRADUATE/INDUSTRIAL-SYSTEMS-ENGINEERING/INDUSTRIAL-ENGINEERING-MS/INDUSTRIAL-ENGINEERING-RESEARCH-MS/](http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/))
- INDUSTRIAL ENGINEERING: SYSTEMS ENGINEERING AND ANALYTICS, M.S. ([HTTP://GUIDE.WISC.EDU/GRADUATE/INDUSTRIAL-SYSTEMS-ENGINEERING/INDUSTRIAL-ENGINEERING-MS/INDUSTRIAL-ENGINEERING-SYSTEMS-ENGINEERING-ANALYTICS-MS/](http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-systems-engineering-analytics-ms/))

POLICIES

Students should refer to one of the named options for policy information:

- Human Factors and Health Systems Engineering (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-human-factors-health-systems-engineering-ms/>)
- Research (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/>)
- Systems Engineering and Analytics (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-systems-engineering-analytics-ms/>)

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/](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/](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/](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, critiques, or elaborates the theories, research methods, and approaches to inquiry or schools of practice in industrial and systems engineering including areas such as decision science and operations research, quality engineering, manufacturing and health systems, and/or human factors.
2. Identifies sources and assembles evidence pertaining to questions or challenges in industrial and systems engineering.
3. Demonstrates understanding of the industrial and systems engineering field of study in a historical, social, or global context.
4. Selects and/or utilizes the most appropriate industrial and systems engineering methodologies and practices.
5. Evaluates or synthesizes information pertaining to questions or challenges in industrial and systems engineering.
6. Communicates clearly in ways appropriate to industrial and systems engineering.

7. Recognizes and applies principles of ethical and professional conduct.

PEOPLE

PROFESSORS

Jeffrey Linderoth (Chair)
Oguzhan Alagoz
Laura Albert
Vicki M. Bier
Pascale Carayon
John D. Lee
Jingshan Li
James Luedtke
Robert Radwin
Leyuan Shi
Raj Veeramani
Shiyu Zhou

ASSOCIATE PROFESSORS

Alberto Del Pia
Kaibo Liu
Douglas A. Wiegmann

ASSISTANT PROFESSORS

Justin J. Boutilier
Carla Michini
Yonatan Mintz
Xin Wang
Nicole Werner
Gabriel Zayas-Caban

FACULTY ASSOCIATES

Terry Mann
Hannah Silber
Amanda G. Smith
Tina Xu

UNDERGRADUATE ADVISORS

Stacy Harnett
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/>).