

# INDUSTRIAL ENGINEERING, M.S.

The Department of Industrial and Systems Engineering offers a number of master of science (M.S.) degree programs in Industrial Engineering:

Industrial Engineering: Research, M.S. (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/>)

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/>)

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/>)

The Industrial Engineering M.S. degree with a named option in Research takes approximately two years to complete. The program has a significant research component, giving students valuable hands-on research experience with mentoring by faculty in the Department of Industrial and Systems Engineering. This program may require a written thesis and defense.

The Industrial Engineering M.S. degree with named options in Human Factors and Health Systems Engineering as well as Systems Engineering and Analytics are considered accelerated graduate programs. Each take approximately 16 months to complete, and must be completed within two (2) calendar years. These two programs include only coursework.

All students are mentored by the world-class faculty in the industrial and systems engineering department at UW-Madison. For a list of faculty and their corresponding research interests, please visit our faculty directory (<https://directory.engr.wisc.edu/ie/faculty/>). For more information on research areas see our page on research in Industrial and Systems Engineering (<https://engineering.wisc.edu/departments/industrial-systems-engineering/research/>).

## ADMISSIONS

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

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

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### PROGRAM RESOURCES

Tuition and funding opportunities vary according to the specific MS program. Funding information for each named option program is available on the corresponding pages:

Industrial Engineering: Research, M.S. (<http://guide.wisc.edu/graduate/industrial-systems-engineering/industrial-engineering-ms/industrial-engineering-research-ms/#fundingtext>)

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/#fundingtext>)

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/#fundingtext>)

Please note that the Human Factors and Health Systems Engineering graduate program, as well as the Systems Engineering and Analytics graduate program, are considered accelerated programs. As such, students enrolled in these programs are ineligible to receive tuition remission for graduate assistantships, per UW-Madison policy.

For more information specific to graduate assistantships within the Department of Industrial and Systems Engineering, please consult the department's graduate program handbook. ([https://engineering.wisc.edu/wp-content/uploads/2022/01/ISYE\\_Grad\\_Handbook\\_Spring2022.pdf](https://engineering.wisc.edu/wp-content/uploads/2022/01/ISYE_Grad_Handbook_Spring2022.pdf))

## REQUIREMENTS

### MINIMUM GRADUATE SCHOOL REQUIREMENTS

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

### MAJOR REQUIREMENTS CURRICULAR REQUIREMENTS

#### Requirement Detail

Minimum	30 credits
Credit Requirement	

Minimum Residence Credit Requirement	16 credits
Minimum Graduate Coursework Requirement	15 credits must be graduate-level coursework. Details can be found in the Graduate School's Minimum Graduate Coursework (50%) policy ( <a href="https://policy.wisc.edu/library/UW-1244">https://policy.wisc.edu/library/UW-1244</a> ( <a href="https://policy.wisc.edu/library/UW-1244/">https://policy.wisc.edu/library/UW-1244/</a> )).
Overall GPA Requirement	3.00 GPA required. This program follows the Graduate School's GPA Requirement policy ( <a href="https://policy.wisc.edu/library/UW-1203">https://policy.wisc.edu/library/UW-1203</a> ( <a href="https://policy.wisc.edu/library/UW-1203/">https://policy.wisc.edu/library/UW-1203/</a> )).
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 [list](#) [View 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:

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

Laura Albert (Chair)  
Oguzhan Alagoz  
John D. Lee  
Jeffrey Linderoth  
James Luedtke  
Robert Radwin  
Leyuan Shi  
Raj Veeramani

Doug Wiegmann  
Shiyu Zhou

### ASSOCIATE PROFESSORS

Alberto Del Pia  
Kaibo Liu

### ASSISTANT PROFESSORS

Justin J. Boutilier  
Tony McDonald  
Carla Michini  
Yonatan Mintz  
Hantang Qin  
Xin Wang  
Qiaomin Xie  
Gabriel Zayas-Caban

### TEACHING PROFESSORS

Amanda Smith

### TEACHING FACULTY

Hannah Silber  
Sinan Tas  
Tina Xu  
Charlene Yauch

### LECTURERS

Terry Mann

### UNDERGRADUATE ADVISORS

Michele Crandell  
Missy Moreau

### GRADUATE PROGRAM COORDINATOR

Pam Peterson

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