

Course Syllabus

[Jump to Today](#)

 [Edit](#)

GE 598: Engineering Design Science

Fall 2016, F 9:00-9:50 am, 305 MSEB

Instructor: Prof. James Allison (jtalliso@illinois.edu, www.systemdesign.illinois.edu (<http://www.systemdesign.illinois.edu/>))

Office Hours:

- **Professor Allison:** Mondays 2:00 pm - 4:00 pm, TB 313

Prerequisites:

Graduate standing. Undergraduate students may also participate for independent study credit (1 credit hour). Expectations for the semester project will be less research-oriented and less intensive for undergraduate students.

Catalog Description:

Scientific foundations of engineering design research. Course consists primarily of directed readings and a final project. Topics: analysis of design theory and methodologies, philosophy of science, and scientific strategies for design research. For their final project, students will select a subset of design research literature and analyze the scientific strategies used.

Course Objectives:

- Develop a foundational understanding of the philosophy of science and the range of valid scientific strategies for generating knowledge.
- Review the history of engineering, engineering design, and engineering design research.
- Utilize the above foundation to analyze the current state of engineering design research, and identify promising paths for improvement of engineering design research.

Course Format

This course is focused on directed readings as a group and discussions led by the instructor, participating graduate students, and possibly guest lecturers. Please see [this page](#) for the reading and discussion schedule. Please see this page for a list of guiding questions we will explore as a class.

Students should begin working on their semester project early. Its scope should be commensurate with two hours of academic credit.

Discussions will take place Fridays at 9 am.

Please see [this document](#) for a one-page course summary.

Grading: 30% class participation, 20% leading class discussion, 50% semester project

Textbooks

Required:

- [Theory and Reality: An Introduction to the Philosophy of Science \(https://www.amazon.com/Theory-Reality-Introduction-Philosophy-Foundations/dp/0226300633\)](https://www.amazon.com/Theory-Reality-Introduction-Philosophy-Foundations/dp/0226300633) (Godfrey-Smith, 2003)
- [Design Science: Introduction to the Needs, Scope and Organization of Engineering Design Knowledge \(http://link.springer.com/book/10.1007%2F978-1-4471-3091-8\)](http://link.springer.com/book/10.1007%2F978-1-4471-3091-8) (Hubka, Eder, 1996, free e-book available through UIUC library)
- Other required readings will be selected adaptively during the semester, and identified on the reading schedule. It is anticipated that these additional readings will either be free or available through the UIUC library.




Resources for Students With Disabilities

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit 1207 S. Oak St., Champaign, call 333-4603, e-mail disability@illinois.edu (<mailto:disability@uiuc.edu>) or go to the [DRES website](http://disability.illinois.edu/) (<http://disability.illinois.edu/>). If you are concerned you have a disability-related condition that is impacting your academic progress, there are academic screening appointments available on campus that can help diagnosis a previously undiagnosed disability by visiting the DRES website and selecting "Sign-Up for an Academic Screening" at the bottom of the page.

Safety Information

- [What to do in an emergency \(pdf\)](http://police.illinois.edu/dpsapp/wp-content/uploads/2016/08/syllabus-attachment.pdf) (<http://police.illinois.edu/dpsapp/wp-content/uploads/2016/08/syllabus-attachment.pdf>).
- [Preparedness video](#) (run/hide/fight).
- Sign up for emergency texts at: emergency.illinois.edu (<http://emergency.illinois.edu/>)

Assignments Summary:

Date	Details
Mon Dec 12, 2016	 Semester Project due by 11:59pm (https://canvas.instructure.com/courses/1066538/assignments/5207602)
	 Class Participation (https://canvas.instructure.com/courses/1066538/assignments/5207588)
	 Lead Group Discussion (https://canvas.instructure.com/courses/1066538/assignments/5207591)