

Computer Science Honors Research Specialization

The CS department is proposing the creation of an honors program (specialization) for computer science undergraduates. The high-level goal of this program would be to engage ambitious students in world-class research with CS faculty and in entrepreneurial activities early on in the curriculum.

Students' progression through the program will involve undertaking challenging upper-level graduate coursework, close contact with IIT CS faculty, and will culminate in the completion of an ambitious research project and an honors thesis. The program would not only provide several benefits to students (outlined below), but would also have the potential to increase the visibility of the department by creating a consolidated pipeline of elite students.

Requirements for the specialization are (13 hours):

- Maintenance of a 3.6 GPA in the CS major, and a 3.5 GPA overall.
- CS492 - Introduction to Computer Science Research (new course, taken in year 1 or 2, see below)
- At least 2 advisor approved, 500-level CS courses (6 credit hours).
- Completion of an ambitious research project and associated honors thesis, advised by a CS faculty member. The thesis/project would culminate in a presentation to a committee for approval in their last semester. 6 credit hours of CS491 or CS497.

CS492 - Introduction to Computer Science Research (NEW COURSE)

To prepare undergraduate computer science majors for doing research. Students should take this course in their first or second year. Offered upon demand. (1 credit hour, undergraduates only, Satisfactory/Unsatisfactory grading)

Course Objectives - Students will:

- create overviews of current department research.
- read and summarize research literature.
- demonstrate knowledge about ethical research
- perform a literature search.
- formulate and investigate a problem.
- become familiar with the skills necessary for computer science research
- be aware of process and resources on how to prepare for a path to graduate school

Course Topics:

- Contribute to survey of current department research.
- The research process.
- Research resources.
- Critical reading of research literature. (Also, reading for breadth vs. reading for depth)
- Ethics and intellectual property related to research.
- Research writing skills.
- Panel of undergraduates doing research.
- Undergraduate research funding and conferences.
- Picking a good problem
- Research pitfalls
- Research career paths: academia, industry, government (labs, policy positions)
- A sample of research: Formulate and investigate a problem with the help of a dept. faculty.
- Preparing for graduate school: getting letters, publishing, applications, etc.