PURDUE UNIVERSITY | Department of Computer Science

Graduate School Opportunities

Pursuing graduate school provides more in-depth study and research in a specific sub-field within Computer Science. Students considering pursuing a MS or a PhD should reflect on their academic background, their drive or passion for pursuing graduate school, and their level of undergraduate preparation when deciding whether, when, and where to apply.

Types of Master's Degrees

Combined BS-MS Program	Academic Masters	Professional Masters
• 4+1 Program; complete both Bachelors and Masters within 5 years • Students take a few graduate courses during their senior year of undergrad • Masters be taken as a thesis or non-thesis • May transition to traditional masters or PhD Program	• Typically 2 years • Include a breadth requirement & will specialize in 2nd year • Works better for both academic and industry • Come with a non-thesis option • Some CS Coursework taken in the same department may count towards PhD	• More accelerated than Academic Masters • Typically more specialized • Coursework tends to be more applied • Useful for industry professionals • May not apply to PhD Programs

Purdue University Graduate School Programs:

- Combined BS-MS Program
- Master's in Computer Science
- Professional Master's Degree in Information Security
- Computational Science and Engineering Program
- Statistics-Computer Science Joint Masters
- Computational Life Sciences Program
- PhD in Computer Science

Experiences that work for Graduate School in Computer Science:

- Strong academic performance in CS and Math (if pursuing Theory/Artificial Intelligence/Machine Learning disciplines)
- Undergraduate Research and Publications
- Undergraduate Teaching Assistant experience
- Computer Science focused internships or jobs
- Experience starting a technology company, if the experience can be verified

Relevant Articles to review if interested in Graduate School

- Prof. Phillip Guo's pointers on applying to graduate school PhD programs (particularly useful for preliminary research)
- Prof. Dave Andersen (Carnegie Mellon) reflects on graduate school admissions
- A Princeton CS major's guide to applying to graduate school

PhD Myths

- I need to complete a masters before a PhD. Students may apply directly to a PhD Program to go directly after completing their undergrad degree and earn their masters along the way.
- I do not want to pay tuition for another 5-6 years for a PhD. Students do not have to, since most CS PhD programs will offer fellowships, graduate research assistantships, graduate teaching assistantships, etc. that come with a stipend (low, but livable wages), health insurance, and tuition is typically fully covered.
- I do not have a 4.0. You do not need a 4.0, however, a strong academic performance (~3.50 or greater) in your undergraduate coursework will ensure students are able to pass all their graduate level classes and qualifying examinations. Substantial research experiences will support your case.
- The only thing I can do after a PhD is become a professor. A number of industry jobs today are highly specialized. These types of positions value candidates with a PhD.

Application Materials

These are materials generally required by most graduate school programs:

1. **Statement of Purpose**. Statement could cover the following topics:
    a. Why pursue a Master's or PhD Degree?
    b. Long term goals
    c. Why this program? Answer may vary by university and program
    d. Name two faculty you would like to work with in the program.
        i. Important to research two faculty for each program you are applying to and reach out to them with your transcript and CV prior to applying.
2. **Research Statement**. This may include:
    a. Three key pieces of work from your undergraduate experiences
    b. Include research work first, if published and include the publication information
    c. Industry project(s) that you worked on are okay. Even if these are not directly research, mainly to demonstrate that you tackled a large project, highlight any problems you experienced, and how you solved it. This helps the committee to know how you will proceed if you are stuck in your research.
3. **Two to Three Letters of Recommendation** (depending on the school). Letters of recommendation may be:
    a. A faculty you have done research with
    b. A faculty member you have been an Undergraduate Teaching Assistant for
    c. A faculty who taught a class that you attended regularly, frequently visited office hours, and did very well in
    d. Your managing supervisor at a CS internship or job
    e. **Do not** ask graduate TAs and **do not** ask individuals who just know you personally. Academic Advisors are usually not be the best fit as a letter of recommendation.
4. **GRE**
    a. Score as close to 170 in Quant as possible
    (avg. for CS Majors range between 155-165)
    b. Score for verbal may be more flexible
5. **TOEFL**
    a. Schools may not directly ask for it, but may give Graduate TA offered based on TOEFL Speaking Score
    b. At Purdue, students need a TOEFL Speaking Score of 27+ to be a Graduate TA
6. **Work Sample, Honors Thesis, a Conference paper you wrote**, etc.
7. **Official Transcript** from Purdue University