The UNIVERSITY of OKLAHOMA
College of Engineering
School of Computer Science

UNDERGRADUATE STUDENT OPTIONS FOR SUCCESS:

The BS in Computer Science degree is your gateway into a multitude of options that can and will afford you success in academic, professional, and research aims. Options available include:

- **Internships and Job Opportunities**
  - First and foremost, undergraduate students should register with OU's Career Services (https://www.ou.edu/career). Career Services provides students with the connections needed to apply for internships and other job opportunities.
  - Every Fall semester, students have the Engineering Job Fair; every Spring semester, students have the University-wide Job Fair. Hundreds of companies come to OU and hire our students, and Computer Science students are highly-sought after.
  - The School of Computer Science from time-to-time hosts special events with companies. Please read emails from the School of Computer Science to attend these events, as the School regularly sends out email announcements to students. These events are a terrific way to connect with companies.
  - The School of Computer Science has a CS Interview Prep Club. This club, advised by Dr. Qi Cheng, will help you considerably to prepare for future interviews.

- **Research Experiences for Undergraduates (REU) – National Science Foundation (NSF)**
  https://www.nsf.gov/crssprgm/reu/
  The National Science Foundation is an independent U.S. government agency that involves itself with education and research for non-medical fields of engineering and science. The "Research Experiences for Undergraduates" program assists with active research for undergraduate students in non-medical fields of engineering and science.
  - Computer and Information Science and Engineering (CISE)
    https://nsf.gov/dir/index.jsp?org=CISE
    CISE is one of the many research areas found at the NSF for REU opportunities. Many Engineering and Computer Science majors find this track to be rewarding.

  KEY QUESTION: Do you relish the thought of research experience during your undergraduate tenure, or are curious how it will prepare you for a job or graduate education? If the answer is yes, this opportunity is for YOU.

- **Pathways to Science – Education and Career Training in the STEM Disciplines**
  https://www.pathwaystoscience.org/Discipline.aspx?sort=TEC-ComputerSci_Computer%20Sciences
  The Computer Science options in this program include everything from Postdoctoral positions, fellowships, scholarships, REU programs, research internships, down to summer camps. From administration to educator to student to full-fledged academic, options in this available mechanism allow the student to tailor their expectation to the realm and time frame best suited for their interest in relationship to their degree.
  KEY QUESTION: Are you curious about various opportunities in STEM that can take place anytime, anywhere? If the answer is yes, this opportunity is for YOU.

- **Graduate School in Computer Science (CS) – The University of Oklahoma (OU)**
  https://www.ou.edu/coe/cs/academics/graduate
  The University of Oklahoma has four programs related to the pursuit of a graduate degree (MS or PhD) in Computer Science:
  - The BS-MS Accelerated Degree Plan (a modified 3+2 curriculum that affords a qualifying and interested student the chance to earn their BS and MS degrees in Computer Science within 5 years, having up to 4 courses 'shared' for BS & MS). *This on-campus option guides the student through a foundational BS in Computer Science, but also through the graduate degree that is a MS in the same field. Mandatory and core coursework comprise approximately half of the dual degree.*
    ➔ Time to complete: 5 years (inclusive of both BS and MS requirements)
  - The traditional MS (a graduate degree track that can involve a non-thesis pursuit at 33 credit hours of all coursework, or, a thesis pursuit at 30 credit hours with 6 credit hours being formally-approved, specially-designed thesis research hours). *This on-campus option possesses a curriculum in which students complete a non-thesis or thesis track, with half of the degree comprised of mandatory and core coursework (non-thesis having 18 credit hours of electives, thesis 6 credit hours).*
    ➔ Time to complete: 2.5 to 3 years
  - The full-online MS (a graduate degree track that is non-thesis in nature, at 33 credit hours of all coursework, in which all courses are taken within OU Online). *This online option is offered through the OU Online Program. A solid academic history in Computer Science & Mathematics is expected for program success.*
    ➔ Time to complete: 2.5 to 3 years
  - The traditional PhD (a graduate degree track requiring at least 90 hours of coursework beyond the BS degree, involving a general examination, culminating with submission and successful defense of original, dissertation research). *This on-campus option is heavily governed by requirements set forth by the OU Graduate College. An earned MS degree is preferred before pursuing the PhD.*
    ➔ Time to complete: Dependent upon utilized coursework; average is 5 years.

  KEY QUESTIONS: Have you always wanted to earn a graduate degree in or do you enjoy having the freedom to pursue specific avenues of academia related to a specific area of Computer Science? Do you want to learn more in-depth inquiry, experimentation, calculative thought, and writing? If the answer is yes, this opportunity is for YOU.

TIPS ON PURSUING GRADUATE SCHOOL IN COMPUTER SCIENCE:

- Graduate school should be an endeavor YOU wish to pursue, not what others dictate.
- The MS is a more robust technical degree, while a PhD is essentially a research degree.
- A MS takes approximately 2 years to complete, while a PhD takes approximately 5 years.
- A GPA of 3.00 or higher at the undergraduate level is preferred when pursuing a track at the graduate level, given graduate coursework rigor will expect higher academic focus.
- Good grades and test scores are not the only substantive components to admission; be sure to have a positive, succinct essay explaining your passion as well as your vision.
- Graduate degrees should not be tied to monetary projections of success but rather the benefits they can afford you through industry, research, and professional autonomy.
- Name-recognition for the program is not always the best gauge of success; consider programs that fit your expectations (based on cost, size, research, course availability).
- Have letters of recommendation from professors and employers (typical ratio of 2:1).
- Graduate assistantships often go to current PhD students in a school's PhD program; graduate assistantships can go to MS students, but it depends on funding availability.
- Do not be timid in applying for all relevant scholarships and fellowships that may be available; such opportunities can be competitive so be assertive in pursuing prospects.
- The best insight on graduate school comes from faculty and current graduate students. Ask such persons about their perspectives and feedback on the degree you are wanting.
- Find a faculty member or members to establish a connection with so that your future academic and research interests have a reliable point-of-reference within the program.

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How to pay for Graduate School:

Graduate programs in Computer Science allow the student to explore, construct, develop, and hone skills that strengthen the knowledge base and reinforce the position of occupational preparedness. While many undergraduate options listed above are still pertinent here (i.e. REU/NSF, Pathways to Science/STEM, Internships & Jobs), there are other options available to help fund graduate students with their degree pursuits:

- **Graduate Research Fellowship Program (GRFP) – National Science Foundation (NSF)**
  https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=6201
  The National Science Foundation is an independent U.S. government agency that involves itself with education and research for non-medical fields of engineering and science. The "Graduate Research Fellowship Program" program assists with graduate student fellowships in all STEM fields supported by the NSF. High-priority research areas such as Artificial Intelligence, Computationally-Intensive Research, and Quantum Information Science are currently trending upward in status for research opportunities.
  KEY QUESTION: Would you like to be in the middle of breakthrough research and have access to research avenues during and beyond your pursuit of graduate studies? If the answer is yes, this opportunity is for YOU.

- **Computer & Information Science and Engineering (CISE) Graduate Fellowships (CSGrad4US) – National Science Foundation (NSF)**
  https://www.nsf.gov/cise/CSGrad4US/
  This Computer Science option expects applicants to be interested in a research-based PhD program, in Computer Science, Computer Engineering, or Information Science. The CSGrad4US program emphasizes the importance of potential that lies in the research PhD pursuit, allowing for BS-degree holders working in industry to return to academia.
  KEY QUESTION: Can you see yourself combining a desire to earn a PhD in Computer Science *with* the desire to steep your graduate experience in research preparation and NSF-endorsed research opportunities? If the answer is yes, this opportunity is for YOU.

- **Graduate fellowships provided by corporate, government, or non-profit entities**
  AAUW Fellowships - https://www.aauw.org/resources/programs/fellowships-grants/
  Society of Women in Engineering - https://swe.org/scholarships/
  Adobe Research, Women in Tech - https://research.adobe.com/scholarship/
  Adobe Research Fellowship - https://research.adobe.com/fellowship/
  Facebook Fellowship - https://research.fb.com/fellowship/
  Graduate Fellowships for STEM Diversity - https://stemfellowships.org/
  J.P. Morgan AI Research - https://www.jpmorgan.com/technology/artificial-intelligence
  NVIDIA Fellowship - https://www.nvidia.com/en-us/research/graduate-fellowships/
  ProFellow - https://www.profellow.com/fellowships/39-computer-science-fellowships/
  ACM SIGHPC Comp & Data Science Fellowships - https://www.sighpc.org/fellowships
  ACM-IEEE-CS HPC Fellowship - https://awards.acm.org/hpc-fellows/nominations
  Google PhD Fellowship Program - https://research.google/outreach/phd-fellowship/
  Hertz Fellowship - https://www.hertzfoundation.org/the-fellowship/faq/
  IBM Fellowship - https://www.research.ibm.com/university/awards/fellowships.html
  NASA Space Tech Research - https://www.nasa.gov/directorates/spacetech/strg/nstgro
  NRC Research Associateship - https://sites.nationalacademies.org/PGA/RAP/index.htm
  Apple PhD Fellowships in Artificial Intelligence/Machine Learning – https://machinelearning.apple.com/updates/introducing-apple-scholars-aiml
  Microsoft Research PhD Fellowship – https://www.microsoft.com/en-us/research/academic-program/phd-fellowship/

****TIPS ON PURSUING GRADUATE SCHOOL FELLOWSHIPS IN COMPUTER SCIENCE***:

- Do not hesitate to look for fully-funded graduate program fellowships. Even those that are not fully-funded may offer partial fellowships that significantly reduce the cost.
- Competition for fellowships is high, so broaden your examination of fellowship options.
- Fellowships and assistantships are typically unavailable for part-time or online students.
- Graduate fellowships often have early deadlines, often synched with admission periods. Existing students in the graduate program will often receive priority consideration given these students are already admitted and have been in the program for a period of time.
- Research assistantships and fellowships are often more prevalent and plentiful than assistantships and fellowships that are related to graduate teaching possibilities.