

Specialty Computing Degree Areas

What can I do with a degree in a Specialty Computing Area?

With new advances in technology being made every day, the realm of possibilities for specialization in computing is ever growing. Specialty computing degree areas extend beyond traditional computing majors, which include computer science, computer engineering, information systems, information technology, and software engineering. Specialty computing degrees may combine elements of traditional majors or intersect with non-computing disciplines such as medicine, criminal justice, or art. These degrees present a unique opportunity for a career that combines computing with other personal interests.



There are hundreds of different specialty computing degrees, a few of which will be discussed here. To explore the full spectrum of specialty computing degree areas, please visit TryComputing.org's university search feature. Specialty computing degree areas can include programs such as bioinformatics, forensic computing, internet engineering, artificial intelligence, or gaming. There are boundless opportunities with regards to what can be done with a degree in a specialty computing area. For example, a forensic computing professional may be responsible for protecting an organization and its customers from cybercrime. A bioinformatics professional's work may include mapping DNA or protein sequences. Game designers might be responsible for developing games for mobile devices or gaming consoles. Internet engineers might work on projects such as developing the next big e-business platform. Computing professionals working in artificial intelligence might design robots for use in the home, industrial settings, or even healthcare. As can be imagined, specialty computing degree holders can work in a wide array of settings including healthcare, criminal justice, education, or business to name just a few.

What additional skills will I need as a Specialty Computing professional?

Specialty computing professionals require varying skill sets depending on the focus of their expertise. Below are a few examples of skills needed in some popular specialty computing degree areas:

- Bioinformatics – analytical skills, communication skills, problem solving, teamwork
- Forensic computing – analytical skills, communication, decision making, detail orientation, teamwork
- Game design – communication skills, detail orientation, creativity, problem solving, teamwork
- Internet engineering – communication skills, decision making, forward-thinking mindset, quantitative skills
- Artificial intelligence – creativity, quantitative skills, attention to detail, problem solving, communication, teamwork

What can I expect during my undergraduate studies in Specialty Computing?

The nature of undergraduate coursework in specialty computing degree areas will depend on the specific focus of the degree. Below are a few examples of the coursework that would be involved in a few specialty computing degree programs:

- Bioinformatics - biology, chemistry, data structures, mathematics, programming, statistics, team projects

- Forensic computing – criminal justice, digital forensic tools, information systems, law, networking, operating systems, programming, security, statistics, team projects
- Game design – art, computer graphics, computer systems, mathematics, physics, programming, software engineering, team projects
- Internet engineering - algorithms, computer systems, databases, e-commerce, human-computer interaction, networking, operating systems, programming, security, software development, team project
- Artificial intelligence - mathematics, physics, electro mechanics, control systems, robotic systems, robot programming, real-time computing, team projects

How can I start preparing now for studies in Specialty Computing?

There are a number of ways that pre-university students can begin preparing for undergraduate studies in a specialty computing degree area. In terms of coursework, it is extremely helpful to have at least four years of mathematics courses, including Calculus, and two years of science courses. Courses in programming, business, communication, engineering, accounting, and foreign language can also be very useful. Coursework or experience in the additional disciplines to which the specialty computing degree program pertains (biology, chemistry, art etc.) is also quite useful.

Pre-university students should also consider involvement in out-of-school time activities to further explore their interest in computing. Students' own schools may offer computing activities as a part of afterschool courses or clubs. There are numerous local, national or global competitions, projects, and fairs available which enable students to gain valuable skills and experience in computing. Many local universities have summer or weekend programs designed to provide students with hands-on experience in computing. Some universities even allow pre-university students to take courses that will earn them credit before even entering university. There are also a number of online tools or even courses that allow students to practice computing skills such as programming. More and more pre-university students are also getting involved with internships, volunteer work, or research projects at local universities, non-profits, or businesses to gain experience and connect with other students and mentors.

Additional resources

- [ACM Careers Brochure](#)