Applied Mathematics and Computer Science

The Bachelor of Science (B.Sc.) degree in Applied Mathematics and Computer Science is BIHEâ€™s first multi-disciplinary major. The program incorporates mathematics and computer science courses. The degree requires 139 course credits over a period of 9 semesters, as well as a culminating research project in the senior year.

The mathematics courses of the major are diverse, including calculus, differential equations, real analysis, complex analysis, numerical analysis, topology, linear algebra, abstract algebra, probability and operational research. These courses serve three primary purposes. First, they teach students major concepts in mathematics. Secondly, they provide a solid foundation for mastering fundamental concepts in computer science, such as the design and analysis of algorithms and data structures. Lastly, they prepare students for the mathematics used in specialized fields of computer science that they will encounter in their junior and senior years. Such fields include artificial intelligence, data science, and compiler design.

The computer science coursework ranges from theoretical areas such as the design of algorithms, discrete structures, the theory of automata and computation, and formal languages, to applied areas such as robotics, data mining, artificial intelligence, database systems, programming languages, software management, and information systems. In comparison to students of Computer Engineering, students who choose to pursue a degree in Applied Mathematics and Computer Science at BIHE will take more computer science and mathematics courses and fewer, if any, courses in electronics and hardware.

The program is designed to produce graduates who are able to work and think independently, creatively and critically. Graduates of the major are prepared to pursue careers in:

- Software development
- Data science
- Systems analysis
- Database administration
- Operations research analysis
- Actuarial science
- Mathematics education

Further, the program prepares students for graduate-level studies in:

- Computer science
- Engineering
- Statistics

- Mathematics