

# How the Bachelor of Arts in Computing & Informatics Prepares Students

## The 1st two years: gaining exposure

The program begins with an introduction to computer programming. You will learn the fundamentals of coding including such constructs as object-orientation, control structures, API libraries, collections, data structures and algorithms.

You will be learning programming in multiple languages. Exposure to different languages both broadens your experience and adds useful language skills to your academic resume. You will be introduced to languages that have imperative, object-oriented and generic programming features. Typically, you will study the strongly typed language C++ and a weakly-typed language such as Python.

After two introductory courses, you will utilize your understanding of programming in two advanced programming workshops. Now that you have built a foundation, you will explore how to expand into different programming languages or code management utilities. Often you might study Ruby on Rails or the statistical programming language, R.

Finally, you will develop programs of realistic complexity. The programs utilize data structures (string, lists, graphs, stacks, trees) and algorithms (searching, sorting, etc.) for manipulating these data structures. You will understand interactive design and the use of microcomputer systems and direct access data files.

### Supplementing your education

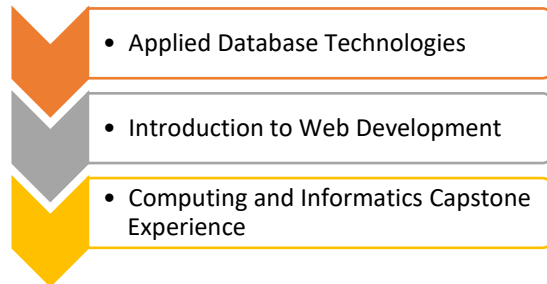
Because it is important to understand the role of computers in today's electronic society, you will be exposed to social and ethical issues regarding computing.

Computer networks provide the communication framework for data interchange. You will be required to understand the principles of modern networks.

Finally, you will need to take computer science courses from many different areas including human computer interaction, cyber security, mobile application development and many more.

## The 2nd two years: building a portfolio

### Key Courses and their prerequisites



#### Applied Database Technologies

Armed with a solid knowledge base, you will next explore database systems. Databases are ubiquitous in today's digitalized world. Massive amounts of data are gathered, queried and analyzed every day. Currently demand outpaces the supply of workers needed to glean useful information from businesses' large data intake from customers, sensors, social media and the stock market. Thus, it is imperative that each BA graduate have a strong grasp of database design concepts and the structured language (SQL) to retrieve and manipulate data.

#### Web Development

Businesses are under pressure to offer top-notch websites with e-commerce, communication and publishing capabilities. The rapid expansion of social media and the interactive Web is also contributing to the need for web developers. Web sites of substance frequently are powered by database back ends. For this reason, you will be expected to have mastered database concepts. In a web development framework, you will leverage your database knowledge to build dynamic web applications utilizing technologies such as PHP, JSON and JavaScript. You will also learn how to code in HTML5 and build cascading style sheets.

#### Capstone Experience

After building substantive web applications, you will draw upon all of the experience gained in your degree program to develop a capstone project of significant merit. This project will be the culmination of your learnings and should be marketed to prospective employers. Additionally, you will learn software engineering methodologies to supplement your technical training.