COMPUTER SCIENCE

COMPUTER SCIENCE I

This course covers the fundamentals of computer problem solving and programming. Topics includes: program development process, differences between the object-oriented, structured, and functional programming methodologies, phases of language translation (compiling, interpreting, linking, executing), and error conditions associated with each phase, primitive data types, memory representation, variables, expressions, assignment, fundamental programming constructs (sequence, selection, iteration), algorithms for solving simple problems, tracing execution, subprograms/functions/methods, parameter passing, secure coding techniques (criteria for selections of a specific type and use, input data validation), and professional behavior in response to ethical issues inherent in computing. The Java programming language is used. Corequisite: MAT 115 or equivalent or permission of the instructor. **Instructor: J. Sheehan**

CSC 150-01B	**M/W/F**	**8/27-12/18**	**noon-12:55pm**	**SRC**	**$780**
CSC 150-S01	**ONLINE**	**8/27-12/18**			**$820**
DCB 2140-01	**M/W/F**	**8/27-12/18**	**noon-12:55pm**	**SRC**	**$780**
DCB 2158-01	**ONLINE**	**8/27-12/18**			**$820**

The DCB course is a non-credit option for the 4-credit CSC course. Students will be expected to do all homework assignments and quizzes but no grade will be awarded. For assistance in selecting a course, please contact SUNY Ulster at 845-802-7171.

COMPUTER SCIENCE II

This course covers the fundamentals of algorithms and object oriented software development. For a full course description refer to catalog at catalog.sunyulster.edu. **This course will be offered Spring 2019.**

COMPUTER GAME DESIGN CREDENTIAL

16 credits

This credential is designed to prepare students for a career in designing and developing computer games. This 16-credit program is designed to fit within SUNY Ulster's Network A.S. Computer Science and A.S. Computer Science (Online) degree programs. The program curriculum is made up of two courses in Computer Science and two courses in Mobile Application Development.

COMPUTER GAME DESIGN I

This course is an introduction to the principles of computer game development. As such, it draws on the student's background in math and physics and enables a creative expression in addition to building on computer science concepts of object oriented programming. For a full course description refer to catalog at catalog.sunyulster.edu. **This course will be offered Spring 2019.**

COMPUTER GAME DESIGN II

This course expands on the fundamental computer game concepts and techniques introduced in CSC 220, Computer Game Design I. It advances use of the C# programming language to animate and handle interactions with the game environment, game elements and the players. Special emphasis will be given to ensuring good game performance. Physical principles of mechanics and lighting will be enlarged to include more natural movement, interaction among objects such as wind and lighting with shading and textures. Computer programming scripts will interact in advanced ways with objects composed of curves, and coverings such as clothed human actors in the game. Prerequisite: CSC 220 or permission of the instructor.
This course will be offered Fall 2019.

WEB APPLICATION DEVELOPER

16 credits

This credential is designed to prepare students for a career in Web Application development. Educational and financial institutions and small businesses of all types have expressed this need. This program is designed to fit within SUNY Ulster's Network A.S. Computer Science and A.S. Computer Science (Online) degree programs. The program curriculum is made up of two courses in Computer Science and two courses in Web Development.

WEB APPLICATION DEVELOPMENT I

This course explores the web development processes and tools used to support the creation of websites and web applications. Students explore HTML, CSS and JavaScript and use them to create websites and web applications hosted by a web server. Web application development frameworks will also be introduced. Through labs and projects students create both static and dynamic web content in the context of producing a professional quality web site. The course focuses on the underlying tools of web development. Prerequisite: familiarity with text file editing as determined by the instructor. **Instructor: J. Sheehan**

CSC 131-01B	**T/R**	**8/27-12/18**	**1:10-2:30pm**	**SRC**	**$780**
CSC 131-S01	**ONLINE**	**8/27-12/18**			**$820**
DCB 2142-01	**T/R**	**8/27-12/18**	**1:10-2:30pm**	**SRC**	**$780**
DCB 2160-01	**ONLINE**	**8/27-12/18**			**$820**

The DCB course is a non-credit option for the 4-credit CSC course. Students will be expected to do all homework assignments and quizzes but no grade will be awarded. For assistance in selecting a course, please contact SUNY Ulster at 845-802-7171.

WEB APPLICATION DEVELOPMENT II

This course covers advanced web application development frameworks, languages and techniques such as Ruby on Rails, jQuery, AngularJS, PHP, and Node.js or equivalent. For a full course description refer to catalog at catalog.sunyulster.edu. **This course will be offered Fall 2019.**

INTRODUCTION TO WORDPRESS

WordPress is a powerful program designed to create websites and blogs. The course introduces basic WordPress terminology and techniques, focusing on content creation, management, development and organization. In this hands-on course, students will learn-by-doing - how to build a website with WordPress. Class will cover: how to create and format web pages and blog posts, select and change themes, create and customize menus, administer a site, use plugins to add functionality, and a lot more! This course is designed for WordPress beginners and it is held in the MAC lab. Prerequisite: proficiency in basic computer skills. **Instructor: D. Pearlman**

DCM 1028-01	**T**	**10/16-11/13**	**6–9pm**	**KSU**	**$179**

Prerequisites are considered to be the basic skills and expected knowledge prior to taking a class. Instructors will assume a readiness for the class material and will not use class time to discuss prerequisite material.

M - MONDAY • T - TUESDAY • W - WEDNESDAY • R - THURSDAY • F - FRIDAY • S - SATURDAY • U - SUNDAY

NEW! PRACTICAL APPROACH TO USER EXPERIENCE (UX) & USER INTERACTION (UI)

Demand for UX designers is on the rise with a 10-year job growth (2014-24) forecast of 19% according to CNNMoney/Payscale's top 100 careers. The field of User Experience and User Interaction web design is one of the most popular areas of expertise in web development / app development today. By studying how end users interact with a particular product, user experience researchers look for ways to make it more intuitive and satisfying, solving real problems, or serving the real needs revealed through research and focus groups surveys. They then communicate the solution to developers and engineers working in a team, make recommendations to designers and product developers on how to implement improvements.

This course will introduce to User Centric Design and its application across different work environments and industries. Students will understand how to approach web and application designs from the UX point of view and how to identify design problems. Course will explore the different areas of expertise in UX. Students will get hand-on experience creating User Personas, practicing how to use them in design process, practicing pitching solution to the chosen User Personas and gather feedback. They will work through the basic steps of the UX design process, creating a basic workflow and wireframe a basic website or application. Students will prepare Usability tests for various Use Cases and conduct a sample test in the group.

While User Experience (UX) is a conglomeration of tasks focused on optimization of a product for effective and enjoyable use; User Interface Design is its compliment, the look and feel, the presentation and interactivity of a product. The last few classes of this course will introduce students to UI foundations.

DCB 2247-01	**W**	**10/10-11/14**	**6-9pm**	**SRC**	**$349**

No class 10/31

Data Science is an interdisciplinary field about processes and systems to extract knowledge or insights from data in various forms, either structured or unstructured, which is a continuation of some of the data analysis fields such as statistics, data mining, and predictive analytics. Data Science is used by many companies to make their products and day-to-day operations better.

NEW! DATA SCIENCE 101 – INTRODUCTION TO DATA SCIENCE

Learn why Data Science, Artificial Intelligence (AI) and Machine Learning (ML) are revolutionizing the way people do business and research around the world. Students will meet data science practitioners and get an overview of what Data Science is today. Students will be introduced to some of the most popular tools for collaborative Data Science, including RStudio IDE, Jupyter Notebooks, and Apache Zeppelin Notebooks. Prerequisite: Computer Science or permission of instructor. **Instructor: D. Pavlov**

DCB 2226-01	**R**	**10/11-11/8**	**6-9pm**	**KSU**	**$250**

NEW! DATA SCIENCE 201 – DATA SCIENCE FUNDAMENTALS

Course will cover introduction to Data Science concepts including Database Architecture, Objects, Tools, Scripting, SQL Fundamentals and NoSQL Fundamentals. Prerequisite: Computer Science

This course will be offered Spring 2019.

NEW! DATA SCIENCE 202 – BIG DATA FUNDAMENTALS

Course will cover Big Data, AI Frameworks (Artificial Intelligence), ML Frameworks (Machine Learning) and Hadoop.
Prerequisite: Computer Science

This course will be offered Spring 2019.

MOBILE APPLICATION DEVELOPER CREDENTIAL

16 credits

This credential is designed to prepare students for a career in developing mobile applications for tablets and smartphones using both the Android and Apple iOS Operating Systems. This 16-credit program is designed to fit within SUNY Ulster's Network A.S. Computer Science and A.S. Computer Science (Online) degree programs. The program curriculum is made up of two courses in Computer Science, (see page 14) and two courses in Mobile Application Development.

ANDROID APP DEVELOPMENT

Android is now the most widely used operating system among smartphones, tablets, and PCs. This course prepares the student to be a professional Android software developer. It is based on an app-driven approach. Mobile system concepts specific to Android are presented in the context of complete working Android apps, rather than using sample code snippets. The student is expected to construct these applications and test them in a simulated mobile device environment. Concepts and techniques introduced in this course include: fundamentals of the Android Studio development environment, concepts and structure of the Android application environment Graphical user interface conventions and graphical concepts. Remote access to information using industry standard protocol, Access to relational data stored on the Android device (via SQLite or equivalent) Animation and simple game development. Corequisite: CSC 180 or permission of the instructor.

CSC 210-01B	**T/H**	**8/28-12/18**	**2:40 - 4pm**	**SRC**	**$780**
CSC 210-S01	**ONLINE**	**8/28-12/18**			**$820**

APPLE IOS DEVELOPMENT

This course prepares the student to be a mobile application developer for Apple iOS devices such as the iPhone and iPad using Swift, a new programming language from Apple. For a full course description refer to catalog at catalog.sunyulster.edu.

This course will be offered Spring 2019.

M - MONDAY • T - TUESDAY • W - WEDNESDAY • R - THURSDAY • F - FRIDAY • S - SATURDAY • U - SUNDAY

WEB DEVELOPMENT

WEB DEVELOPMENT MINI BOOT CAMP

Each course in this mini bootcamp delivers real-world skills essential in website development. Courses can be taken separately based on your previous experience, but no experience is necessary. Taken all together, these courses will provide a solid foundation in website development and the holistic business perspective one needs to implement a truly effective online business strategy, for your own project or for clients.

All our instructors are local, experienced professionals in the field of website development and technology, and are passionately involved in growing the local tech community. The technology skills presented in these courses are current, relevant to today's job market, and based on industry best practices.

INTRODUCTION TO INFORMATION ARCHITECTURE/WEBSITE PLANNING

Not all websites are created equal. For your online business presence to yield maximum benefit to your business, all content on the site must be designed to communicate value to your ideal customer in an easy and natural way. In this course, students will learn how to define and plan their website content for the optimal conversion to business goals. This course covers: content blocks and flow, user journey, graphic branding, calls to action, online marketing strategy, mockups and wireframes.

Instructor: Y. Ovchinnikova

DCB 2170-01	**R**	**9/20-10/11**	**6-8pm**	**SRC**	**$199**

WEBSITE DEVELOPMENT I WEBSITE CONSTRUCTION PRINCIPLES HTML5 & CSS

Students are provided with a hands-on introduction to the universal architecture of the web. This course covers website construction with HTML5 and CSS, file structure and hierarchy, design and usability concepts, accessibility-conscious coding, and website hosting and administration. Students will learn website development fundamentals hands-on by building a simple, professional-class website in class. **Instructor: S. White**

DCB 2171-01	**M**	**10/15-11/12**	**6-9pm**	**SRC**	**$499**

WEBSITE DEVELOPMENT II MULTIPAGE WEBSITES, CSS STRATEGIES

Students will extend their knowledge of HTML5 & CSS in building multi page websites. Students will explore CSS strategies for managing multi-column layout, responsive design principles, and how to code a website from a design mockup. The course will also cover CSS drop-down menus, tables, forms, and embedded media. Prerequisite: Website Development – Part I or equivalent knowledge (instructor-approved). **Instructor: S. White**

DCB 2172-01	**M**	**11/19-12/17**	**6-9pm**	**SRC**	**$499**

WEBSITE DEVELOPMENT III BUILDING BLOCKS OF DYNAMIC WEBSITES

Students will discover the power of dynamic website coding with an introductory examination of PHP and MySQL. In this course, students will implement basic dynamic functions with PHP, and will hand-code a simple PHP-MySQL application to produce a dynamically-generated blog page. Students will examine similarities between their application and open source Content Management Systems like WordPress, and use what they learned to migrate an existing WordPress website. Prerequisite: Website Development II or equivalent knowledge (instructor-approved).

Students must bring a laptop to class. Instructor: S. White

DCB 2225-01	**M**	**1/7-2/11**	**6-9pm**	**SRC**	**$499**

No class 1/21

WEB DEVELOPMENT INFORMATION SESSIONS

Learn about the options for web development training. Registration required.

DCB 2167-01	**W**	**8/22**	**7pm**	**KSU**	**FREE**
DCB 2167-02	**M**	**8/27**	**6pm**	**KSU**	**FREE**
DCB 2167-01	**M**	**9/10**	**6pm**	**KSU**	**FREE**

INTRODUCTION TO JAVASCRIPT & JQUERY

This course is designed for JavaScript novices who have little or no experience with the language. Students will learn the structure of JavaScript variables, scope, control flow and functions. Students will create code that interacts with DOM and adds interactive behavior to a website. The course will discuss best practices and introduce jQuery – a widely used JavaScript library. Prerequisite: knowledge of HTML and CSS or Website Development II. **Instructor: D. Pavlov**

DCB 2173-01	**R**	**2/21-3/28**	**6-9pm**	**KSU**	**$399**

No class 3/14

WEBSITE OPTIMIZATION FOR GOOGLE

This course examines the interplay between clear business messaging and search engine optimization. Principles covered include: Niche Service, Location, Speed, Proper Website Structure, Blogs, Target Keywords, Tags, Metadata, Google Analytics basics, Google Search Console basics, AdWords basics and Tips and Tricks. **Instructor: Y. Ovchinnikova**

DCB 2174-01	**R**	**4/4-25**	**6-8pm**	**KSU**	**$259**

Dr. Yulia Ovchinnikova

Yulia Ovchinnikova, PhD is a business development professional, tech entrepreneur, educator and consultant working primarily with the technology industry. She is a key-connector for Hudson Valley tech entrepreneurs and a recognized leader of the tech community. She holds a PhD in Economics from Russian Academy of Science and an MA in Applied Mathematics & Computer Science from Moscow State Technical University of Electronics & Mathematics. Yulia and her team from OpenHub are instructors for the Web Development Bootcamp.

M - MONDAY • T - TUESDAY • W - WEDNESDAY • R - THURSDAY • F - FRIDAY • S - SATURDAY • U - SUNDAY