DEPARTMENT OF COMPUTER & ELECTRICAL ENGINEERING AND COMPUTER SCIENCE

College of Engineering & Computer Science
Florida Atlantic University

2020-2021 CEECS Professional MS in Computer Science
Course Schedule and Course Description

Course Schedule

FALL 2020

CAP 5768 Introduction to Data Science

August 22th – September 18th

On-campus lecture days: Saturday/ August 22th & September 5th

This course provides a comprehensive introduction to the tools and analysis workflows employed by data scientists that include data wrangling, visualization, exploration, and modeling. Specific topics include an overview of the field of data science and analytics, data visualization, exploratory data analysis, data transformation, parameter estimation, hypothesis testing, linear regression analysis, logistic regression classification, model selection, feature selection, dimensionality reduction, and clustering. The practical application of these techniques to real data, as well as the interpretation and presentation of analysis results, will be emphasized throughout the course.

COP 5675 Mobile App Development

September 19th – October 16th

On-campus lecture days: Saturday/ September 19th & October 3rd

This course provides a comprehensive overview of the lifecycle of mobile app development, including feasibility assessment, wireframing, design, implementation, testing, and deployment. It also discusses user interface and user experience aspects, business feasibility considerations, as well as contemporary techniques, methodologies, and best practices for mobile application development. Students will learn a framework for mobile app development and work on a practical project where they can demonstrate their newly acquired skills.

COT 6819 Advanced Internet Systems

October 17th – November 13th

On-campus lecture days: Saturday/ October 17th & October 31th

This course introduces present and new internet technologies including middleware, web services, cloud computing, fog and edge computing, distributed ledger techniques, and Internet of Things (IoT). Specific internet and web applications will be presented including Search Engine Optimization, applications of distributed ledger technology, and IoT applications for smart cities and homes.

CIS 6370 Computer Data Security

November 14th – December 15th

On-campus lecture days: Saturday/ November 14th & December 5th

This class will start with preliminary material and mathematical foundations of data security. It will then cover private-key encryptions, public-key encryptions, and fundamental security protocols. Finally, it will focus on emerging technologies such as (a) digital currencies and their implementations, (b) blockchain and its applications, e.g., in supply chain and information sharing, and (c) privacy enhancing technologies using security protocols, e.g., in autonomous systems, auctions, and financial paradigms.

SPRING 2021

COT 6930 Randomized Algorithms and Secure Designs

January 9th – February 5th

On-campus lecture days: Saturday/ January 9th & January 23th

In this class the students will learn the foundations of randomized algorithms, and how to apply these principles in crypto tools to design secure systems. The class will start with an overview of the model of randomized computation and the principles of design and analysis of randomized algorithms. In the second half, the course will cover the connection between randomization and security, and how to design secure systems.

CNT 5008 Computer Networks

February 6th – March 5th

On-campus lecture days: Saturday/ February 6th & February 20nd

This course provides an in-depth study of the Internet architecture and its main communication protocols. It covers common media access control protocols for wired and wireless networks (WiFi and cellular), the IP protocol at the network layer, and the UDP, TCP, and RTP end-to-end transport protocols. It introduces the main application-layer protocols at the foundation of the Internet, including HTTP and DNS. Advanced topics are TCP socket programming and software defined networking.

CEN 5035 Software Engineering

March 13th – April 9th

On-campus lecture days: Saturday/ March 13th & March 27th

This course focuses on advanced concepts in software engineering and the application of engineering principles to the creation of complex, long-lived applications. This course will expose students to a wide range of software engineering concepts and state-of-the-art technologies. In addition to software engineering acumen, students are expected to develop excellent writing and presentation skills. This course will first review basic principles of software engineering, and then it will focus on more specific and advanced topics, including model driven development, Internet of Things (IoT), reverse engineering and program comprehension, and finally touch on topics of DevOps.

COP 6731 Theory and Implementation Database Systems

April 10th – May 8th

On-campus lecture days: Saturday/ April 10th & April 24th

This class provides an in-depth coverage of data models, query languages, and database management systems. Topics include fundamental concepts of database systems, SQL, relational algebra, database design (e.g., conceptual, logical, and physical data models), query optimization, transaction processing, and new trends (e.g., data warehousing & OLAP and data mining). Oracle database will be used to understand technical components in database systems.

SUMMER 2021

CAP 6673 Data Mining and Machine Learning

May 15th – June 11th

On-campus lecture days: Saturday/ May 15th & May 29th

This course deals with the principles of data mining and machine learning. Topics to be covered include machine learning methods, knowledge discovery and representation, classification, and prediction models. This course will enable students to understand basic concepts of data mining and machine learning algorithms with an emphasis on real-world applications.

COT 6930 Healthcare Informatics

June 12th – July 9th

On-campus lecture days: Saturday/ June 12th & June 26th

This course provides a comprehensive overview of tools, technologies, and concepts of computer science and engineering applied to the field of healthcare. This course discusses various health informatics standards and health informatics systems. Specifically, it covers system components for Health Information Systems, interoperability issues, remote patient monitoring, preventive care, and emerging concepts and application of computer science in healthcare.

Note: The Saturday classes are recorded and made available on Canvas. During Covid-19 campus restrictions, courses will be delivered fully online.