Berlin 2020 – Courses
www.cc.gatech.edu/berlin | berlin@cc.gatech.edu

Overview:
- Courses are taught in English by GT faculty for GT resident credit.
- Choose 4 courses for a total of 12 credit hours for the summer.
- Carefully check the prerequisites for the courses! ALL majors are welcome.
- Classes take place on the campus of Technische Universität Berlin (TU-Berlin).
- Course meeting times are typically arranged to avoid any scheduling conflicts for students.
- It is expected that students will spend an average of 40 hours per week on coursework: approximately 16 hours per week in class for the 4 courses taken through the program plus 24 hours per week working outside of class.

Who are the faculty for summer 2020?
- Henry Owen: College of Engineering: School of Electrical and Computer Engineering, Professor; owen@gatech.edu
- Thomas Ploetz: School of Interactive Computing: Associate Professor; thomas.ploetz@gatech.edu
- Michael Nitsche: School of Literature, Media, and Communication: Associate Professor in Digital Media; michael.nitsche@gatech.edu
- Mark Moss: College of Computing: Lecturer; mmoss7@gatech.edu

Course Offerings for summer 2020:
CS 2340: Objects and Design with Prof. Moss (prerequisite: CS 1331, CS 1372, or CS 1316)
Students will learn how to design and build software systems in teams using modern software development methods, with a focus on object-oriented design techniques. This course provides background in team-based software development, agile development methodologies, and software design paradigms, principles and patterns, with a focus on the critical decisions that frequently arise during the design phase of many software development processes. Students will develop and implement a course project in order to apply some of the abstract concepts being studied in a more practical setting. This course will help prepare students for their design capstone courses and for professional software engineering roles.

CS 2701: Startup Lab with Prof. Owen
The best time to learn how to "create your own job" is not the day you suddenly have to, but instead before you need to. This class explores a scientific method which may be used for creating your own job or creating your own projects inside of an existing company. The class involves getting out and interacting with the local Berlin community. Group based discussion and active learning both in the classroom and outside of the classroom with topics including opportunity identification and validation, ideation, customer discovery, market analysis, minimum viable product development, and business models. Provides a "safe and supportive" classroom environment to improve public speaking and presentation skills. Includes class field trips to local incubators and local professional events. An excellent way to become involved in the Berlin community.

CS 3600: Artificial Intelligence with Prof. Ploetz (prerequisite: CS 1332)
Students will explore the breadth of the field of Artificial Intelligence in this introductory course that provides an overview of the field and its practical applications. The goal of Artificial Intelligence is to develop agents that act intelligently. Over the course of the semester, students will learn about the methods and tools to design and build an intelligent agent that can understand, reason, learn about the world, and act rationally in the given environment. Through practical assignments students will implement intelligent agents based on what they have learned in class.

CS 4001: Computing & Society (Ethics Credit) with Prof. Owen
This highly interactive and discussion based course examines computing as a social process, with emphasis on ethical and social impacts on local and global organizations. Topics include the responsibilities of computing professionals, intellectual property, privacy governance and policy, and computing/technology safety and security. The course includes Berlin specific and European Union general issues such as European societal viewpoint on privacy and how this impacts you, even when you go back to Atlanta. Relevant current topics in the news related to computers and society will also be discussed.
CS 4400: Introduction to Database Systems with Prof. Moss (prerequisite: CS 1301, CS 1315 or CS 1371)
Students will learn the fundamental concepts necessary for the design and use of modern database systems in today’s large-scale enterprise applications. The course takes a very hands-on approach in demonstrating how to use the Structured Query Language (SQL) to view and manage data in the database, and to build database structures. Also, students will analyze requirements in order to develop, implement and test a database system using Entity Relationship Diagrams, relational schema conversion processes, data integrity and normalization principles, and the MySQL Relational Database Management System. The course also covers relational algebra, relational calculus, and related topics including indexes and transactions.

CS 4641: Machine Learning with Prof. Ploetz (prerequisite: CS 1331)
Students will learn how to create computer programs that learn from data. Machine Learning is the hottest growth area in high tech, with large companies scrambling to build machine learning/data science programs and startups being born every day. This course presents the foundations of machine learning, surveys the major paradigms, and provides practical skills. After taking this course students will be prepared for further study in machine learning, e.g., to specialize in a particular area, or to apply skills as a data scientist or machine learning engineer (especially after taking additional courses like CS 2340). With its rapid growth and reach into personal lives, machine learning has also been the topic of ethical debates concerning privacy and bias. With its clear connections to ethics, startups, and modern software development, CS 4641 will complement and enhance the other courses being offered in Berlin.

LMC 3262: Performance Studies with Prof. Nitsche (prerequisite: ENGL 1102)
Building on basics of Performance Studies, this course will focus on questions of digital performance practice and its challenges. Digital performance happens on Facebook, Twitter, video game play, in blockbuster movies, in our encounters with robots, and on traditional stages. It shapes behavior as well as technology, frames the emergence of new social groups as well as individual expression. We will ask: How do digital media affect performative expression? How can we expand on their opportunities and deal with their limitations? To answer these questions, we will tackle theoretical readings as well as practical assignments and our own performance prototypes. Berlin hosts countless performance practices that offer many opportunities for exploration, critique, and inspiration. The class will feature readings, discussions, critique sessions, and teamwork is necessary throughout but especially in the final project.

LMC 3314: Technologies of Representation with Prof. Nitsche (prerequisite: ENGL 1102)
This course is about media and how they manifest in objects. How can our thoughts and expressions materialize in a physical media form? This question is answered in particular media objects, namely puppets. Puppets might be the ultimate threshold object: they operate along a fine line between “alive” and “dead,” “object” and “subject,” “physical” and “virtual.” This class will combine practice and theory. We will discuss different puppet traditions touching on readings from Performance Studies, Media Studies, and Critical Craft/ Making. In parallel, we create own prototypes as critical responses to our discussions. Students should expect to discuss readings, design and develop own prototypes, and be able to critically review their work throughout in class discussions.

Please note: Registration permits for courses will be issued based on the order of the student’s acceptance into the program and other criteria. The maximum capacity for courses will be enforced; overload permits may be issued in exceptional circumstances. Apply and complete your application early to the program to ensure you get the courses you want. We recommend that you have 1-2 alternate courses in the event you are unable to secure a seat in your top 4 preferred courses. An online survey will be distributed in March 2020 to participants from which class rolls will be set by the program.