SEAS 0920. Continuing Research - Master's. 0 Credits.
Continuing research.

SEAS 0930. Continuation for Doctoral Candidates. 0 Credits.
Continuing research.

SEAS 1001. Engineering Orientation. 1 Credit.
Introduction to careers in engineering and computer science, University resources, and computer skill development. Emphasizes teamwork skills by applying them to several design projects. (Fall).

SEAS 1099. Variable Topics. 1-36 Credits.

SEAS 1800. Special Topics in Engineering. 1-3 Credits.
Experimental offerings on introductory-level topics and applications related to various disciplines in engineering. Topics vary by semester. May be repeated for credit provided the topic differs. Consult the Schedule of Classes for more details. Open both to GW undergraduate students and to high school students. (Fall, spring, and summer).

SEAS 4800. Special Topics. 1-3 Credits.
Special topics related to new technology and advances, experimental offering on new course topics and applications. Topic to be announced in the schedule of classes. May be repeated for credit provided the topic differs. Recommended background: Undergraduate student. (Fall, spring, and summer).

SEAS 5099. Variable Topics. 1-99 Credits.

SEAS 6014. Introduction to Software and Hardware Security. 3 Credits.
Fundamental principles of designing secure software and hardware systems and the range of attacks that seek to compromise them. Overview of computer architecture and present attacks targeting the hardware, operating system, and application layers. Restricted to SEAS online students only.

SEAS 6020. Optimization and Decision Making. 3 Credits.
This course focuses on optimization models, including linear, integer, and nonlinear programming. Applications include resource allocation, transportation, production planning, scheduling, inventory management, and finance. Recommended background: Undergraduate students must have completed SEAS 3200 and SEAS 4200. (Fall).

SEAS 6100. Innovation and Technology. 3 Credits.
Introduction to design and management of technology; Law of Diffusion of Innovation; identification of fundamental engineering design limits; sustained vs. disruptive engineering and technology, best practices from innovators and visionaries; engineering solutions at the prototype state; benefits of intellectual property protections; transformative technology and assessment from a holistic and global view point; application of the lean start-up approach to real-world challenges including sustainability. Restricted to SEAS students or with the instructor's permission. (Fall and spring).

SEAS 6200. Launching Technical Ventures. 3 Credits.
Fundamentals of building an organization and the capabilities necessary to launch and nurture early-stage ventures. Lean start-up management practices, with insights and lessons learned to avoid common mistakes associated with launching new businesses. (Spring).

SEAS 6300. Climate Change Policy and Regulation. 3 Credits.
Past and present policies, regulations, and standards at the local, national, and international levels addressing climate change-related challenges facing society; creating and guiding policy that is scientifically sound and resonates with the public; technological, institutional, and political infrastructures of air-land-water interactions; regulation of technologies at the forefront of climate action policy. (Fall, spring, and summer, Every Year).

SEAS 6303. Climate Change Capstone. 3 Credits.
Case studies suggested by examination of NASA's Soil Moisture Active Passive (SMAP) satellite mission; the Department of Energy's Innovation Hub (JCAP); federal climate change policy with regard to the Paris Agreement; intended Nationally Determined Contributions; and other topics. (Fall, spring, and summer, Every Year).

SEAS 6401. Data Analytics Foundations and Practicum. 3 Credits.
Introduction to concepts and techniques in data analytics. Basic techniques of data science; algorithms for data mining; basics of statistical modeling and their “Big Data” applications. Concepts, abstractions, and practical techniques. Restricted to students in the MS in data analytics program. (Fall, Every Year).

SEAS 6402. Data Analytics Capstone. 3 Credits.
Students apply previously learned data analytics concepts and tools to the solution of practical problems in a year-long project. Planning, design, and construction of the project, including project demonstration, project specifications, report writing, and presentations. Restricted to students in the MS in data analytics program. Prerequisites: CSCI 6362 or EMSE 6765; CSCI 6441 or EMSE 6586; and CSCI 6444 and EMSE 6574. (Spring, Every Year).

SEAS 6506. Literacy in Science and Engineering. 2 Credits.
Introduction to the academic literacy skills essential for the study of science and engineering. (Fall, spring, and summer, Every Year).

SEAS 6509. Scientific Engineering Communication. 2 Credits.
Continuation of SEAS 6506, focusing on writing, oral presentation, and the use of technology to communicate science and engineering concepts. (Fall, spring, and summer, Every Year).

SEAS 6510. Scientific Research Communication. 2 Credits.
Continuation of SEAS 6506, focusing on researching, writing, oral presentation, and the use of technology to communicate science and engineering concepts. (Fall, spring, and summer, Every Year).

SEAS 6609. Engineering and Science Communication. 2 Credits.
Continuation of SEAS 6506, focusing on writing, oral presentation, and the use of technology to communicate science and engineering concepts. (Fall, spring, and summer, Every Year).

SEAS 6610. Engineering and Science Research Communication. 2 Credits.
Continuation of SEAS 6506, focusing on researching, writing, oral presentation, and the use of technology to communicate science and engineering concepts. (Fall, spring, and summer, Every Year).

SEAS 6616. Ethics and Society. 3 Credits.
Introduction to ethical and societal issues in science, society, and technology. (Fall, spring, and summer, Every Year).
SEAS 6410. Security Data Visualization. 3 Credits.
Visualization aspect of security data, including study of data analytics and scaling up information security, security metrics and security monitoring techniques focusing on industry applications. Tools for security data visualization and analytics. Restricted to online program students. Prerequisites: EMSE 6767.

SEAS 6411. Management and Compliance in Cloud Computing. 3 Credits.
Maintaining compliance in the cloud. Theory, methodology, and procedures related to cloud computing; proper audit procedures for discovering system vulnerabilities; documenting findings according to the standards of compliance-based auditing. Restricted to SEAS online students. Prerequisites: ECE 6132.

SEAS 6412. Cloud Migration Strategy. 3 Credits.
Migrating traditional IT services to a cloud-based environment. Technical and business considerations necessary to develop an effective cloud migration strategy for an organization. Decision analysis framework to prioritize migration applications. Restricted to SEAS online students. Prerequisites: ECE 6132.

SEAS 6800. Special Topics. 1-3 Credits.
Experimental offering of new course topics and applications related to advances in technology. Topic announced in the Schedule of Classes. May be repeated for credit provided the topic differs. (Fall, spring, and summer).