**SCHOOL OF ENGINEERING AND APPLIED SCIENCE (SEAS)**

**Explanation of Course Numbers**

- Courses in the 1000s are primarily introductory undergraduate courses.
- Those in the 2000s to 4000s are upper-division undergraduate courses that can also be taken for graduate credit with permission and additional work.
- Those in the 6000s and 8000s are for master’s, doctoral, and professional-level students.
- The 6000s are open to advanced undergraduate students with approval of the instructor and the dean or advising office.

**SEAS 0920. Continuing Research - Master's. 1 Credit.**
- (Fall, spring, and summer, Every Year).

**SEAS 0930. Examination Preparation. 0 Credits.**

**SEAS 0940. Continuing Research - Doctoral. 1 Credit.**

**SEAS 1001. Engineering Orientation. 0-1 Credits.**
- 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 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 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.**
- Continuation of SEAS 6401. Students apply previously learned data analytics concepts and tools to the solution of practical problems in a year-long project. Project demonstration, project specifications, report writing, and presentations. Restricted to students in the MS in data analytics program. Prerequisite: SEAS 6401. (Spring, Every Year).

**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).