Science and Policy Undergraduate Certificate – Experiential Research Guidelines/Requirements

All students in the Science and Policy undergraduate certificate are required to complete an experiential research project. The purpose of the experiential research is to allow students to "cap off" their certificate by completing an original project that applies the knowledge and skills developed in the program to a contemporary issue at the intersection of science and policy. Specifically, the experiential research project is expected to focus either on policies for science or on policies based on robust scientific evidence.

The experiential research project should generally be completed in student's last semester in the certificate program, although a student can also complete the project earlier with permission.

Options and Requirements

Students have the options of selecting as their experiential research project either an independent study (ISCI-490) or an internship (ISCI-491). Alternatively, with the approval of the program Director, the independent study or internship may be completed within the students' major prefix. These credits may be used in the fulfillment of their major or as a general elective.

Regardless of the option chosen, all experiential research projects must satisfy two broad criteria. First, the project must engage with ***significant contemporary debates*** in science policy. Second, the project must make an ***original contribution***, meaning that it does one or more of the following: presents an original theoretical framework or policy proposal; conducts original primary data collection and analysis; and/or performs an original analysis and synthesis of existing data. Additionally, the experiential research project must be original in the sense that it has not been (or is not being) submitted to satisfy a coursework requirement for another class.

Independent Study Track

Independent studies can be configured as research papers or policy briefs.

- *Research paper.* A paper describing research – including experimental or other empirical research, computational research, or analysis and synthesis of existing data – conducted by the student coupled with a discussion of the policy implications of the results (for instance, research that shows the environmental toxicity of certain chemicals and argues for the need to regulate their use);
    - *Typical structure of a research paper: introduction; review of current relevant literature (unless already covered in the introduction); materials and methods; results; discussion and analysis of policy implications; conclusions; references*
- *Policy brief.* A policy brief in which the student proposes a number of options to address an existing science policy issue (for instance a policy brief addressed to the National Security Council providing options for the regulation of an emerging technology that has aspects of security concern).
    - *Typical structure of policy brief: introduction; background context; identification and motivation of policy options; evaluation of the evidence base for the policy options; policy recommendation; analysis of limitations and response to critics; references*

Policy briefs will typically be 15-20 pages in length, double-spaced, 1-inch margins, 12pt font. Research papers will be typically shorter (10-15 pages), to compensate for the fact that the student will spend a significant portion of the semester conducting the research. These page limits are inclusive of citations.

Internship Track

Internships will typically be conducted at a site where students can engage work focusing on policy for the sciences or policy based on scientific evidence. The student's supervisor at the internship site may serve as the student's policy mentor if desired. Students are expected to produce a report describing their internship work at the intersection of science and policy.

- *Internship report paper.* Students that select the internship track will produce a report paper describing their internship experience.
  - *Typical structure of an internship report paper: introduction; review of current relevant literature (unless already covered in the introduction); description of the science policy work conducted during the internship; discussion; conclusions; references*

Internship report papers will typically be 10-15 pages in length, double-spaced, 1-inch margins, 12pt font. These page limits are inclusive of citations.

Mentors

Students will be required to have one STEM mentor, who will typically be a CAS faculty member, and one policy mentor, who will typically be an SPA faculty member, to help them complete their selected project. Dual mentoring is designed to help students excel in this interdisciplinary endeavor and will serve as a venue to engage with professionals in the STEM and policy arenas. Beyond AU faculty members, mentors may also be outside experts. At least one of the mentors must be an AU faculty member. The CAS mentor is also the instructor for the Independent Study.

The mentors have the following responsibilities:

- The STEM and policy mentors assist the student in defining a reasonable scope of work for the experiential research project, ensuring that it meets the standards of originality as defined above.
- The STEM and policy mentors work together to supervise the student, meet regularly with the student, and set deadlines *throughout the entire semester* to ensure regular ongoing progress.
- The STEM and policy mentors check the student's raw qualitative and quantitative data as needed. The mentors may offer advice on the credibility and/or drawbacks of particular sources.
- The STEM and policy mentors communicate as needed with the program directors on any issues or problems that arise with respect to the student's progress on the experiential research project.
- The STEM mentor grades the student's independent study project in consultation with the policy mentor.