

# CONSERVATION STUDIES (CONS)

## 100 Level Courses

**CONS 100:** *Introduction to Field Conservation Ecology*. 2 credits.

In this immersive 1-week experience, students will acquire firsthand exposure to fieldwork in conservation and how conservation professionals contribute to survival of species in natural habitats. Through a combination of lectures, discussions, fieldwork and outdoor adventure students will be introduced to major concepts of ecology (including diversity, succession, species interactions, communities, populations and ecosystems) in the context of species and habitat conservation. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** Participation in the Washington Youth Summit on the Environment.

**Schedule Type:** Lecture

**CONS 110:** *Special Topics in Conservation*. 1-3 credits.

Students acquire first-hand exposure to a specific topic in conservation and how conservation professionals contribute to the long-term survival of species. Through a combination of lectures, discussions, and field/lab work, students explore current questions, methods and applications related to a particular topic in conservation. Course Format: Sections of this Smithsonian-Mason School of Conservation course will be taught as an intensive, mixed-format (lectures, lab exercises, field exercises) offerings, in residential, full-day, 1-3-week sessions held at the 3,200 acre Smithsonian Conservation Biology Institute in Front Royal, VA. Students may also be required to complete pre-course reading assignments, and carry out and submit final projects during (or within six weeks after) the onsite session. Offered by Provost's Office. May be repeated within the degree for a maximum 6 credits.

**Schedule Type:** Lecture

## 300 Level Courses

**CONS 320:** *Conservation in Practice*. 3 credits.

Work with a conservation mentor in a practicum experience. Create a portfolio documenting professional development. Notes: Must be taken concurrently with CONS 401, CONS 402, CONS 410, and CONS 490 or CONS 403, CONS 404, CONS 411, and CONS 491. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** Junior standing and a college level biological or

**Recommended Corequisite:** environmental science course. CONS 401, CONS 402, CONS 410, and CONS 490.

**Schedule Type:** Lecture

## 400 Level Courses

**CONS 400:** *Conservation Seminar*. 2 credits.

Examines key conservation issues, based on readings and discussions from the primary literature. Teaches professional development skills for scientists in conservation including fundraising, poster presentations, and interpretation of findings for diverse audiences. Develops skills for obtaining internships, jobs, or graduate positions. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or equivalent course or INTS 401, and EVPP 301 and 302 or equivalent or permission of instructor.

**Schedule Type:** Seminar

**CONS 401:** *Conservation Theory*. 3 credits.

Introduces the field of conservation biology and science-based management of threatened wildlife, habitats, and human landscapes. Provides theoretical background for understanding the importance of biodiversity conservation and sustainability. Notes: Must be taken concurrently with CONS 320, CONS 402, CONS 410, and CONS 490. Only offered through the Smithsonian-Mason Semester. Students cannot get credit for this course and Biology 318 or NCLC 401. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Junior standing and a college level biological or

**Recommended Corequisite:** environmental science course. CONS 320, CONS 402, CONS 410, and CONS 490.

**Schedule Type:** Lecture

**CONS 402:** *Applied Conservation*. 4 credits.

A practical scientific approach to the nature of biodiversity and species loss. Students participate in field conservation exercises in a variety of settings, as well as endocrine and reproductive technology labs. Students apply field and laboratory experiences to understanding science's connection to management decision-making for conservation. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 410, and CONS 490. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Junior standing and a college level biological or

**Recommended Corequisite:** environmental science course. CONS 320, CONS 401, CONS 410, and CONS 490.

**Schedule Type:** Laboratory, Lecture

**CONS 403:** *Ecology and Conservation Theory*. 3 credits.

Students learn ecological theories that underlie successful conservation practice. Content includes an in-depth examination of factors that influence the distribution and abundance of organisms within landscapes across temporal and spatial scales. In individual and group activities, students review conservation case studies, interpret scientific data, and apply their analysis to conservation scenarios at many scales. Designated a Green Leaf Course. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Recommended Corequisite:** Enrollment in the Smithsonian-Mason Monitoring Semester.

**Schedule Type:** Laboratory, Lecture

**CONS 404:** *Biodiversity Monitoring*. 4 credits.

Covers the assessment, monitoring and conservation of species and habitats as well as the tools for sampling species and habitats and the evaluation of those tools' effectiveness. Students use this practical, hands-on knowledge to prepare a series of reports and recommendations for future work. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** BIOL 308 or equivalent course or INTS 401 and EVPP 301 and 302 or equivalent, or permission of instructor.

**Schedule Type:** Laboratory, Lecture

**CONS 405:** *Landscape and Macrosystems Ecology*. 4 credits.

Identify and characterize patterns in landscapes, investigate how they form and change over time, and consider anthropogenic influences. Model populations and communities across landscapes, and consider ways of managing them to achieve goals in managing species and ecosystem processes at local, regional, and continental scales. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** (EVPP 301 and EVPP 302) or INTS 401 or BIOL 308 or equivalent course.

**Schedule Type:** Laboratory, Lecture

**CONS 406:** *Small Population Management*. 4 credits.

Investigates species vulnerability to extinction and the methodologies of preserving genetic diversity in small populations, both in the wild and in captivity. Teaches modeling and laboratory techniques that promote successful captive breeding, such as hormone analysis and assisted reproductive techniques. Examines captive species in the Smithsonian Conservation Biology Institute to learn husbandry practices and skills from keepers and biologists. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 or equivalent course or INTS 401, and EVPP 301 and 302 or equivalent, or permission of instructor.

**Schedule Type:** Lecture

**CONS 410:** *Human Dimensions in Conservation*. 3 credits.

Provides sociological, local and global perspectives on conservation issues including adaptive management, conflict resolution, environmental economics, sustainability, public policy, environmental values and public opinion, and conservation ethics. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 490. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office. May not be repeated for credit.

**Mason Core:** Social/Behavioral Sciences, Encore:Sustainability

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Junior standing and a college level biological or

**Recommended Corequisite:** environmental science course. CONS 320, CONS 401, CONS 402, and CONS 490.

**Schedule Type:** Lecture

**CONS 411:** *Science Communication for Conservation*. 3 credits.

Addresses the need for clear, direct and proactive communication of scientific processes. Students design communication strategies for diverse audiences and learn skills to engage stakeholders in dialogue related to specific conservation issues. Through individual and group activities that emphasize written, visual and oral communications techniques, students learn how the messages can affect people. Designated a Green Leaf Course. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Recommended Prerequisite:** Admission into the Smithsonian-Mason Monitoring Semester.

**Recommended Corequisite:** Enrollment in the Smithsonian-Mason Monitoring Semester

**Schedule Type:** Lecture

**CONS 420:** *Human-Wildlife Conflict*. 3 credits.

Covers the impact of human-wildlife conflict on conservation efforts and human health and well-being. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** Junior standing or permission of instructor.

**Schedule Type:** Lecture

**CONS 490:** *RS: Integrated Conservation Strategies*. 3 credits.

Integrates the course work of the Smithsonian-Mason Semester through study of current conservation issues. Students incorporate interdisciplinary aspects of conservation into a summative group case study on a chosen conservation issue and present formally before a faculty panel. Notes: Must be taken concurrently with CONS 320, CONS 401, CONS 402, and CONS 410. Only offered through the Smithsonian-Mason Semester. Offered by Provost's Office. May not be repeated for credit.

**Mason Core:** Encore:Sustainability, Synthesis

**Specialized Designation:** Green Leaf Course, Research/Scholarship Intensive

**Recommended Prerequisite:** Junior standing and a college level biological or

**Recommended Corequisite:** environmental science course. CONS 320, CONS 401, CONS 402, and CONS 410.

**Schedule Type:** Lecture

**CONS 491:** *RS: Conservation Management Planning*. 4 credits.

Explores strategies and decisions that help secure the long-term survival of threatened species and habitats. Focuses on the planning tools necessary to define and set conservation goals and quantitatively assess species and areas of conservation value and prioritization. Offered by Provost's Office. May not be repeated for credit.

**Mason Core:** Encore:Sustainability, Synthesis

**Specialized Designation:** Green Leaf Course, Research/Scholarship Intensive

**Recommended Prerequisite:** BIOL 308 or equivalent or INTS 401 and EVPP 301 and 302 or equivalent, or permission of instructor.

**Schedule Type:** Lecture**CONS 496:** *Research in Conservation*. 5 credits.

One-on-one research experience with a conservation practitioner over 5 weeks (about 36 hours per week) on a conservation research project associated with that practitioner's program. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** BIOL 308 (or equivalent course) or INTS 401, and EVPP301 and 302 (or equivalent) or permission of instructor.

**Schedule Type:** Independent Study**CONS 497:** *Special Topics in Conservation*. 1-3 credits.

Topics of current relevance to the field of conservation. Offered by Provost's Office. May be repeated within the degree for a maximum 9 credits.

**Schedule Type:** Lecture**CONS 498:** *Internship*. 1-3 credits.

Directed readings and final reflective paper or project in conjunction with an internship subject to instructor approval. Permission to enroll must be obtained from the Mason Center for Conservation Studies at least two weeks prior to the start of the semester. Offered by Provost's Office. May be repeated within the degree for a maximum 9 credits.

**Schedule Type:** Internship**CONS 499:** *Independent Study/Research*. 1-3 credits.

An independent project or directed exploration into an area of conservation not covered by other courses. Offered by Provost's Office. May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** Permission of instructor.

**Schedule Type:** Independent Study**600 Level Courses****CONS 620:** *Spatial Ecology, Geospatial Analysis & Remote Sensing for Conservation*. 3 credits.

Teaches students to use spatial ecology, geospatial analysis, and remote sensing tools to assess and model species distribution and habitat use in dynamic landscapes. Includes computer and field labs with examples using data from Smithsonian research. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office. May not be repeated for credit.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture**CONS 625:** *Statistics for Ecology and Conservation Biology*. 3 credits.

Provides an overview of experimental design and analysis techniques used in cutting-edge ecological research and conservation. Focuses on increasing knowledge of statistical tests, interpretation of results, and

ability to disseminate and clearly explain these results. Students gain an overview of applied monitoring and analysis techniques such as distance sampling, genetic analysis, niche and species distribution modeling, and spatial analysis. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** Basic statistics course

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture**CONS 630:** *Species Monitoring & Conservation*. 3 credits.

Explores monitoring and conservation research methods and approaches for specific taxa through lectures, case studies, lab exercises, and field work. Focuses on conservation science and conservation outreach techniques. Notes: May be repeated for credit with approval of the Mason Center for Conservation Studies. A maximum of 6 credits may be applied to the Applied Conservation Science Certificate. Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office. May be repeated within the degree for a maximum 9 credits.

**Recommended Prerequisite:** A general biology (or relevant species-related) course and a statistics course, or permission of instructor. Prior coursework in environmental science, zoology and ecology recommended.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture**CONS 635:** *Non-Invasive Genetic Techniques in Wildlife Conservation*. 2 credits.

Introduces the benefits, drawbacks and applications of non-invasive genetic techniques to wildlife conservation; focuses on answering questions in animal behavior, population biology, and population management, particularly for vertebrate populations; provides hands-on experience relating to all stages of a research project utilizing modern noninvasive methods from sample collection to data analysis and interpretation. Notes: This course is taught as an intensive, mixed-format (lectures, discussions, lab and computer exercises) offering, in a residential, full-day, 1-week session held at the Smithsonian Conservation Biology Institute in Front Royal, VA. Students also complete pre-course

reading assignments, and prepare and submit final projects after the intensive onsite session has concluded. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** College-level Genetics Course AND College-level Ecology/Evolution Course.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Laboratory

**CONS 640:** *Adaptive Management for Conservation Success*. 3 credits.

Sound training in adaptive management is essential for conservationists dealing with the challenges of a changing planet. In groups, students develop a management plan for a real-world conservation project using the adaptive management framework of the Open Standards for the Practice of Conservation. Students can extend the techniques to their own work after the course. Notes: This Smithsonian-Mason Conservation Studies Program course is an intensive 2-week fulltime residential session, incorporating lectures, discussions, and student exercises on group projects. This course will be held at the Smithsonian Conservation Biology Institute's 3,200 acre facility in Front Royal, VA, USA. Offered by Provost's Office. May not be repeated for credit.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CONS 645:** *Estimating Animal Abundance and Occupancy*. 3 credits.

Provides a strong theoretical and analytical background to the current and accepted methods of estimating population parameters including abundance, survival, and population change. The course teaches study design, implementation and analysis of data from distance sampling, mark-recapture, and occupancy modeling techniques, with a strong focus on the practical use of field data in the programs DISTANCE MARK and PRESENCE. Notes: Course Format: This course is taught as an intensive, mixed format (lectures and computer work) offering, in a residential full-day (8:30am-6pm), 2-week session held at the Smithsonian Conservation Biology Institute in Front Royal, VA. Students complete pre-course reading assignments, and are graded in participation, computer exercises and a final exam. Some night sessions occur throughout the two weeks as well. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** College-level introductory statistics course.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CONS 660:** *Effective Conservation Leadership*. 3 credits.

Teaches effective leadership and management through individual assignments and group exercises. Explores international environmental and conservation case studies, offers hands-on experience to help students develop their own leadership styles. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office. May not be repeated for credit.

**Recommended Prerequisite:** Students should have a basic background in conservation, ecology, environmental sciences, or similar field.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CONS 665:** *Conservation Conflict Resolution*. 3 credits.

Focuses on approaches to cultivating sustainable conservation solutions, including determining root causes of complex conflict dynamics, designing decision-making processes to address conflict, and building mutual respect and trust among stakeholders. Employing principles and strategies developed by the Human-Wildlife Conflict Collaboration (HWCC), students learn how to resolve current conservation conflicts, anticipate arising ones, and reconcile old conflicts that impede new progress. Notes: Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written approval of the graduate director of the student's program. Offered by Provost's Office. May not be repeated for credit.

**Specialized Designation:** Green Leaf Course

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture

**CONS 697:** *Special Topics in Conservation*. 1-3 credits.

Topics of current relevance to the field of conservation. Notes: May be repeated for credit with approval of the Mason Center for Conservation Studies. A maximum of 6 credits may be applied to the Applied Conservation Science Certificate. Offered through the Mason Center for Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is not available to students pursuing a degree at George Mason without prior written

approval of the graduate director of the student's program. Offered by Provost's Office. May be repeated within the degree for a maximum 9 credits.

**Registration Restrictions:**

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Non Degree or Senior Plus.

Enrollment is limited to Graduate, Non-Degree or Undergraduate level students.

Students in a Non-Degree Undergraduate degree may **not** enroll.

**Schedule Type:** Lecture