

CONSERVATION STUDIES (CONS)

100 Level Courses

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

In this immersive 1-week experience, high school 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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 6 credits.

Specialized Designation: Topic Varies

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 120: *Wicked Problems and Grand Challenges*. 3 credits.

Wicked Problems and Grand Challenges focuses on teaching principals and practice of next generation approaches for conservation and development with a problem-oriented approach. This course will review how we may harness the power of emerging exponential technologies (e.g. gene editing, machine vision, and robotics), open innovation (e.g. prizes, challenges, mass collaboration, and citizen science), and entrepreneurship (e.g. for-profit, hybrid, and open source models for scale) inside both the public and private sector to transform the efficacy and scale of conservation and development efforts. This course will review the current problem sets in conservation and development, rethink assumptions regarding how to address them, and consider real case examples of successes and failures. Finally, we will also bring in select leading social innovators and development experts who have pioneered new approaches to wicked problems. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

200 Level Courses

CONS 201: *How to Succeed in Conservation*. 2 credits.

Develops professional and personal skills needed to succeed in the field of conservation. Gives an overview of best practices in conservation, as well as self-promotion and professional engagement skills (networking, social media use, online presence). Skills learned include leadership, communication, community engagement, outreach, social marketing, and conflict resolution. Introduces the range of careers and integration of disciplines in conservation. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 210: *Inquiry and Design*. 3 credits.

This course builds skills in scientific inquiry and experimental design as it relates to biodiversity conservation. Students will be introduced to the scientific method and how to select research questions. They will develop an independent project enabling them to practice developing a hypothesis, design a study, perform a literature review, collect and analyze original data using summary statistics, and present their findings to their peers. This class will build from the CONS 120 Grand Challenges in Conservation course and introduce methods from social sciences and quantitative analysis, to enable students to decide which follow-up data analysis course is most appropriate for their interests. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Registration Restrictions:

Required Prerequisite: CONS 120^C.

^C Requires minimum grade of C.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Recommended Prerequisite: A college level biological or

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

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 332: *Insect Biology*. 4 credits.

Insects are the most diverse group of land animals on earth and as such the study of their form and function can inform a strong understanding of ecological function and diversity. Through asynchronous online lecture as well as synchronous online recitation, students will explore the morphology, taxonomy and ecology of a wide diversity of insect specimens. In a one-week, in-person residential experience at the SMSC campus at the Smithsonian Conservation Biology Institute in Front Royal, VA students will have the opportunity to learn and practice a wide range of entomological sampling techniques as well as practice identification skills. Special emphasis will be placed in the course to connect the form and structure of insects to how they function in the ecosystem, so students can continue to observe and study this fascinating group of animals in the future. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 340: *Introduction to Ecological Data Analysis*. 3 credits.

Understanding data collected in ecological and biological research requires knowledge of the appropriate analyses often required for dealing with the type and characteristics of these data. In addition, there are many approaches that are both unique to these fields and extremely useful in understanding organisms and ecosystems. This course will provide an overview of a variety of analytical approaches, including both introductory statistical concepts as well as additional analyses useful for biologist and ecologists (e.g. diversity indices, mark-recapture and occupancy, ordination, etc.). Mapping and spatial analyses will also be addressed. Most analyses will be performed in Microsoft Excel, with a brief introduction to the R statistical computing environment also provided. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 360: *Qualitative Research and Inquiry*. 3 credits.

This course introduces students to qualitative research and inquiry related to the social and biological aspects of biodiversity conservation. Students will develop understanding of qualitative research methodology and data collection through case studies of empirical research about contemporary issues. Students will examine the diverse foundational assumptions, project designs, methods of acquiring data, analytical techniques, interpretive strategies, and ethical and political considerations that characterize contemporary research in this field today. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Registration Restrictions:

Required Prerequisites: (BIOL 214^C or STAT 250^C).

^C Requires minimum grade of C.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum of 6 credits. Equivalent to BIOL 351.

Specialized Designation: Mason Impact.

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Seminar

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. Students cannot get credit for this course and Biology 318 or NCLC 401. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Specialized Designation: Green Leaf Related Course, Mason Impact.

Recommended Prerequisite: A college level biological or

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

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Specialized Designation: Green Leaf Related Course, Mason Impact.

Recommended Prerequisite: A college level biological or

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

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. This practical, hands-on knowledge is used to prepare plans and recommendations for future work. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts. Equivalent to BIOL 352.

Specialized Designation: Green Leaf Related Course

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Specialized Designation: Mason Impact.

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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, as well as working with data in R. Examines captive species in the Smithsonian Conservation Biology Institute to learn husbandry practices and skills from keepers and biologists. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Specialized Designation: Mason Impact.

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Mason Core: Mason Core (All), Social/Behavioral Sciences, Encore: Sustainability (<http://catalog.gmu.edu/mason-core/>)

Specialized Designation: Green Leaf Focused Course, Mason Impact.

Recommended Prerequisite: A college level biological or

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

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 440: Ecology Field Skills. 4 credits.

Directed field studies emphasizing ecology and behavior. Topics vary but include design of field manipulation, data collection and analysis, and introduction to organisms of study site. May include field trips. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts. Equivalent to BIOL 357, EVPP 440.

Recommended Prerequisite: BIOL308 or BIOL310 (or equivalent course), or INTS 401 Conservation Biology

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 460: Statistics and Study Design in Ecology and Conservation. 3 credits.

An understanding of statistics and study design is essential to success in the fields of ecology and conservation. However, many of the analyses of greatest utility for ecological data are frequently unable to be addressed in introductory courses, while advanced courses often delve deeply into a limited set of techniques. This course bridges this gap: building on knowledge obtained in introductory courses, additional techniques appropriate to many forms of ecological data and more advanced approaches will be introduced. This course will address the fundamentals of study design, linking choices made when establishing a research project to the types of analyses appropriate to the chosen design. Emphasis will be placed on understanding the output of analyses, and separating statistical significance from biological or

ecological significance. Additionally, skills in data manipulation, analyses, and graphics using the R statistical computing environment will be developed. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Registration Restrictions:

Required Prerequisites: (BIOL 214^C, 214^{XS}, SOCI 213^C, 213^{XS}, STAT 250^C, 250^{XS}, CONS 404^C or 404^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 472: *Introduction to Animal Behavior*. 3 credits.

Study of mechanisms, functions, and evolution of animal behavior. Topics such as avoiding predators, finding food, migration, communication, reproductive systems, mating behavior, parental care, sociality and cooperation will be explored. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts. Equivalent to BIOL 472.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 480: *Primate Behavior, Ecology and Conservation*. 3 credits.

Using primates as a focal taxon, this two-week course examines the theoretical background on how ecology, behavior, and life history influence primate abundance, distribution, and population dynamics. Teaches data collection methods for primate behavior studies, survey methods and habitat assessment techniques. Topics include several conservation-related case studies. Includes the development of a research proposal concerning primate socio-ecological strategies to address larger conservation issues. Notes: Students have the option to register for an "add-on" field experience course, CONS 497 "Primate Behavior and Conservation in Peru", through the Mason Study Abroad Global Education Office (GEO). In this course, students conduct independent research on primate species in the wild. The course takes place at the Los Amigos Biological Research Station in Peru. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Recommended Prerequisite: This course is open to 3rd and 4th year undergraduate students who have obtained a minimum GPA of 2.25. The course is also open to recent graduates, non-degree seeking students and non-Mason students.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>).

catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/). Limited to three attempts.

Mason Core: Mason Core (All), Mason Apex, Encore: Sustainability (<http://catalog.gmu.edu/mason-core/>)

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

Recommended Prerequisite: A college level biological or

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

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Mason Core: Mason Core (All), Mason Apex, Encore: Sustainability (<http://catalog.gmu.edu/mason-core/>)

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

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 495: *Capstone in Conservation Strategies*. 4 credits.

Students work in teams to develop a conservation plan concerning a current, challenging conservation issue with local relevance or global reach. Students use an integrated, multi-disciplinary approach to examine the topic, incorporate science-based research and evidence, and develop practical solutions for some of the world's most pressing conservation challenges. Students will engage with various conservation practitioners to help direct project goals and develop communication plans for appropriate audiences. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Recommended Prerequisite: An approved upper-division course, preferably with a conservation focus. Students must have completed at least 85 credits, or permission of instructor.

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 496: *Research in Conservation*. 6 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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 12 credits.

Mason Core: Mason Core (All), Mason Apex (<http://catalog.gmu.edu/mason-core/>)

Specialized Designation: Mason Impact., Research/Scholarship Intensive

Registration Restrictions:

Required Prerequisites: (BIOL 308^C, 308^{XS}, EVPP 301^C, 301^{XS}, 302^C, 302^{XS}, BIOL 377^C, 377^{XS}, EVPP 377^C, 377^{XS}, INTS 401^C or 401^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

Schedule Type: Independent Study

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 497: *Special Topics in Conservation*. 1-4 credits.

Topics of current relevance to the field of conservation. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 9 credits.

Specialized Designation: Topic Varies

Schedule Type: Lecture

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 9 credits.

Schedule Type: Internship

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 9 credits.

Recommended Prerequisite: Permission of instructor.

Schedule Type: Independent Study

Grading:

This course is graded on the Undergraduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

500 Level Courses

CONS 503: *Conservation Behavior*. 4 credits.

Introduces students to the fundamentals of Conservation Behavior, a field that seeks to apply theories of animal behavior towards solving biological conservation and wildlife management problems. The course will consist of interactive lectures, readings (including a text and primary literature), and discussion. Additionally, students will get hands-on, inquiry-based experiential learning while working in groups at the National Zoo to design and conduct independent behavioral-based research on endangered species. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Registration Restrictions:

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

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

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 540: *Ecology Field Skills*. 4 credits.

Graduate level directed field studies emphasizing ecology and behavior. Topics vary but include design of field manipulations, data collection and analysis, and introduction to organisms of study site. May include field trips. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May not be repeated for credit.

Recommended Prerequisite: BIOL 308 or BIOL 310, or EVPP 305 and EVPP 306, or INTS 401 or equivalent course

Registration Restrictions:

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

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

Schedule Type: Laboratory, Lecture

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 560: *Statistics and Study Design in Ecology and Conservation*. 3 credits.

An understanding of statistics and study design is essential to success in the fields of ecology and conservation. However, many of the analyses of greatest utility for ecological data are frequently unable to be addressed in introductory courses, while advanced courses often delve deeply into a limited set of techniques. This course bridges this gap: building on knowledge obtained in introductory courses, additional techniques appropriate to many forms of ecological data and more advanced approaches will be introduced. This course will address the fundamentals of study design, linking choices made when establishing a research project to the types of analyses appropriate to the chosen design. Emphasis will be placed on understanding the output of analyses, and separating statistical significance from biological or ecological significance. Additionally, skills in data manipulation, analyses, and graphics using the R statistical computing environment will be developed. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). Limited to three attempts.

Registration Restrictions:

Required Prerequisites: (BIOL 214^C, 214^{XS}, SOCI 213^C, 213^{XS}, STAT 250^C, 250^{XS}, CONS 404^C or 404^{XS}).

^C Requires minimum grade of C.

^{XS} Requires minimum grade of XS.

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

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

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 580: *Primate Behavior, Ecology and Conservation*. 3 credits.

Using primates as a focal taxon, this two-week course examines the theoretical background on how ecology, behavior, and life history influence primate abundance, distribution, and population dynamics. Teaches data collection methods for primate behavior studies, survey methods and habitat assessment techniques. Topics include several conservation-related case studies. Includes the development of a research proposal concerning primate socio-ecological strategies to address larger conservation issues. Notes: Students have the option to register for an "add-on" field experience course, CONS 497 "Primate Behavior and Conservation in Peru", through the Mason Study Abroad Global Education Office (GEO). In this course, students conduct independent research on primate species in the wild. The course takes place at the Los Amigos Biological Research Station in Peru. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May not be repeated for credit.

Recommended Prerequisite: This course is open to graduate students who have obtained a minimum GPA of 3.0. The course is also open to non-Mason students.

Registration Restrictions:

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

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

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

CONS 597: *Special Topics in Conservation*. 1-4 credits.

Topics of current relevance to the field of conservation. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 9 credits.

Specialized Designation: Topic Varies

Registration Restrictions:

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

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

Schedule Type: Lecture

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

600 Level Courses

CONS 625: *Generalized Linear and Mixed Models in Ecology and Conservation Biology*. 3 credits.

This regression-based analytical course combines lectures on theory and concepts with significant time practicing statistical tools within the R environment. The course concludes with a final project module where participants work independently to conduct a full analysis of a provided dataset and present their results. This course covers: probability theory, random variables and statistical distributions, linear models, generalized linear models, model diagnostics, data transformations, visualizing results, missing data and collinearity. Offered through the Smithsonian-Mason School of Conservation in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. This course is taught as an intensive, mixed format (lectures, computer work) offering, in a residential full-day (8:30am-6pm), 2 week session with some optional night sessions. Course includes a required Saturday morning session. Sunday is a free day. An online asynchronous format is also offered. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). 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, Junior Plus, 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

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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. Each course includes not only significant time in the field practicing field data collection methods but also significant time in the computer lab learning the latest data analysis tools. Notes: Offered through the Smithsonian - Mason School of Conservation Studies in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. 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. Students complete pre-course assignments, and are graded in participation, computer exercises and a final exam. Some night and early morning sessions may occur. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). 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, Junior Plus, 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

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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, occupancy, survival, and population change. The course teaches study design, implementation and analysis of data from distance sampling, mark-recapture, and occupancy modeling techniques, with all analysis performed and practiced in the program R. Time is provided throughout for work on a student's own data/project with help of instructors. Offered through the Smithsonian-Mason School of Conservation in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. Course Format: This course is taught as an intensive, mixed format (lectures, computer work) offering, in a residential full-day (8:30am-6pm), 2-week session. Students complete pre-course assignments, are graded in participation, computer exercises and a final exam. Night sessions may occur, there is a full day of class on Saturday. Sunday is free. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). 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, Junior Plus, 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

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)

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 Smithsonian-Mason School of Conservation. Offered through the Smithsonian-Mason School of Conservation in cooperation with the Smithsonian Conservation Biology Institute on site in Front Royal, VA. Course Format: These courses are taught as an intensive, mixed format (lectures and computer work) offering, in a residential full-day (8:30am-6pm), 1 week, 10 day or 2 week session, as well as an 8 week online asynchronous format depending on the course/section. Students complete pre-course assignments, and are graded in participation, computer exercises and a final exam or project. Some night sessions may occur for on-site courses, which may also include some weekend class days. Offered by Provost's Office (<http://catalog.gmu.edu/colleges-schools/interdisciplinary-programs-courses/>). May be repeated within the degree for a maximum 9 credits.

Specialized Designation: Topic Varies

Registration Restrictions:

Enrollment limited to students with a class of Advanced to Candidacy, Graduate, Junior Plus, 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

Grading:

This course is graded on the Graduate Regular scale. (<http://catalog.gmu.edu/policies/academic/grading/>)