

BIO 016: BIODIVERSITY AND CONSERVATION – GLOBAL ISSUES

DATES: June 5 – July 28, 2023

LOCATION: Students will participate in the course using Georgetown University's online learning management system called Canvas. To learn more about Canvas, please go through the Canvas Guide for Students.

INSTRUCTOR INFORMATION

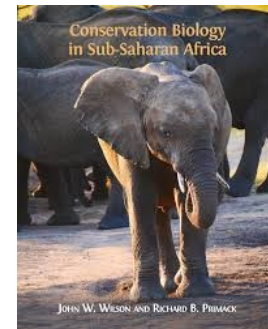
PROFESSOR

Dr. Angela van Doorn
Biology Department & The Earth Commons
Angela.van.Doorn@georgetown.edu

VIRTUAL OFFICE HOURS: By Appointment

RESPONSE TIME

Questions will be answered within 24 hours; assignments will be graded within 7 days of submission.



COURSE DESCRIPTION

This course examines how evolution generates biodiversity, the abundant diversity of life on earth, the interconnectivity of living organisms, the major threats to biological diversity, and the tools that are used in conservation. In doing so, we will build upon current scientific understanding of how our natural world works and explore conservation management in practice. Students will also develop practical skills analyzing data and communicating science. Approaches to better connect the practice of conservation with the needs and priorities of a growing human population are emphasized.

This course will employ a range of teaching methodologies (e.g., asynchronous lectures, online discussions, analysis of existing data sets, and case studies), complemented by online modeling, virtual experiments, and data collection in your local environment.

COURSE LEARNING OBJECTIVES

By the end of this course, you should be able to:

1. **Explain the relationships among fundamental concepts from the discipline**, including forces of evolution, species, populations and ecosystems, extinction and its causes, threats to biodiversity, and conservation strategies at multiple scales.
2. **Synthesize and communicate scientific information** relevant to biodiversity and conservation issues.
3. **Apply the scientific method**. This includes observations, experiments, and analysis of information from hands-on activities, simulations, published data, or case studies.
4. **Assess biodiversity and conservation related content** in popular discourse, daily life, or scholarly research.
5. **Integrate scientific knowledge with other perspectives** from the social sciences, and the humanities in the analysis of complex conservation challenges.



COURSE READINGS

Wilson & Primack (2019) *Conservation Biology in Sub-Saharan Africa*. Open Book Publishers, Inc. ISBN 178374751X. * *Textbook is open-source and freely available.*

Additional readings and viewings (lectures and/or short films/videos accessible online) links are posted on Canvas.

COURSE ASSIGNMENTS AND GRADING CRITERIA

Grades for the course will be comprised of the following:

- **Exams** (15% x 2 exams): Based on assigned reading, viewings and lectures; dates shown in course schedule.
- **Class Activities and Participation** (30%): Includes case studies, presentations, reading questions, problem sets, analyzing data, worksheets, and discussion posts.
- **Assignments** (30%): Include Reflection and Analysis writing assignments, fieldtrips, reading assignments and research assignments. Assignments are based on journal articles, documentaries, popular viewings and/or lectures related to the topics discussed in class. Detailed instructions, examples and grading rubric are posted on the course Canvas site.

Quality of Work: All assigned work must be typed. Written assignments must adhere to basic grammar, punctuation, and spelling rules.

*All assignments should be done **individually** unless otherwise directed; sharing work will result in a 0 for all students involved.*

GRADING COMPONENTS *	
a) Exams	30%
b) Class Activities, Discussions & Assignments	30%
c) Assignments	30%
d) Final Presentation	10%
Overall Grade	100%
* <i>Approximate values – actual value may slightly differ</i>	

Grading Scheme

Evaluation of a student's performance in this course as a whole will be guided by the following criteria:

- A:** Demonstration of superior work (written and oral) in fulfillment of course requirements; improvement during the semester will be weighed in evaluation.
- B:** Excellent work (written and oral) in fulfillment of course requirements; improvement during the semester will be weighed in evaluation.
- C:** Satisfactory work (written and oral) in fulfillment of course requirements
- D:** Assigned work is not satisfactory or not completed and/or student fails to meet minimum attendance requirements.
- F:** Failure to meet minimum course goals.

GRADING SCALE			
A	≥ 93	C+	≥ 77-79
A-	≥ 90-92	C	≥ 73-76
B+	≥ 87-89	C-	≥ 70-72
B	≥ 83-86	D	≥ 60-69
B-	≥ 80-82	F	< 60



All assessments will have detailed instructions in the Canvas course space. You should review all of the instructions in Canvas and the rubrics before submitting each assessment. If you have questions about an assessment or rubric, contact the instructor to schedule a time to speak one-on-one.

COURSE SCHEDULE

This course begins with an Orientation and is divided into 8 modules. Below is an outline describing the course structure. Each Module will be released on a weekly basis every Sunday at 11:59 pm (ET). Students are required to move through each module in sequential order.

ORIENTATION

The orientation provides an overview of the course and introduces you to your instructor and peers. You will also learn about the technology requirements and where to get support.

MODULE 1: Conceptual Foundations of Conservation [June 5 - June 11]

In the first module we will discuss how our underlying understanding, experience, and ideas about nature shape our values, use, and protection of the environment. Next, we will then delve into the history of conservation and explore how the protection of nature has changed over time. Finally, we will review the scientific method and explore experimental design, replication, sample size, and the importance of statistics in scientific studies. This will give us a solid background for the scientific studies, claims, and data we will be engaging with during the semester.

MODULE 2: The Origin of Species and Biodiversity [June 12 - June 18]

In this module, we will review how the process of evolution generates the diverse variety of life on earth through natural selection, mutation, artificial selection, and genetic drift. An understanding of these vital processes is essential to assess the current threats to biodiversity and plan conservation actions accordingly.

Next, we will explore the diversity of life on this planet, highlighting the similarities that are shared between all organisms. We will then examine biodiversity in the areas where we live by engaging in the citizen scientist project iNaturalist in a BIO 016 Bioblitz. We will use this project to further explore the scientific method and experimental design.

MODULE 3: The Role and Value of Biodiversity [June 19 - June 25]

[Add topic and key questions]

MODULE 4: Extinction [June 26 - July 2]

During this module, we will explore our current extinction crises and look at what past mass extinction events can tell us about the future trajectory for biodiversity. We will then assess the traits that increase the extinction risk for species and examine how extinction rates are calculated. Next, we will discuss how humans are not only increasing the extinction rate of species but how we are also playing a major role as a selective pressure in species evolution. Finally, we will begin to examine current and future threats to biodiversity. In particular, we will focus on the greatest threat to biodiversity - habitat alteration. This includes wide scale habitat destruction, alteration, and fragmentation.

MODULE 5: Threats to Biodiversity [July 3 - July 9]



During this module, we will continue to explore threats to biodiversity with a focus on disease, invasive species, and overexploitation. Building off our discussion of habitat loss and alteration from last week, we will begin by examining the link between habitat loss, biodiversity, and zoonotic disease reservoirs. Next, we will explore our role in the spread of invasive species, and how invasive species affect ecosystems. Finally, we will explore the effects of water, soil, and air pollution on biodiversity and ecosystems.

MODULE 6: Threats to Biodiversity [July 10 - July 16]

This week, we will explore humans as drivers of the overexploitation of biodiversity, assess the consequences of this overexploitation, and explore sustainable resource consumption. Next, we will assess the impacts of climate change on biodiversity. Past climate shifts can give us some insight as to what to expect with our current warming climate. Previously plants and animals would slowly move northward or into areas with higher elevation. What is different about this warming period is both the pace of changes as well as pressures facing biodiversity from other human threats such as habitat destruction and overexploitation. As we have seen before, some organisms are better suited to adapt to the changing climate than others so we are also witnessing a change in the composition of species as well as both the expansion and contraction of species ranges.

MODULE 7: Preventing Extinctions [July 17 - July 23]

This week we will explore multiple approaches to conserving biodiversity including species, ecosystem, wilderness, and hotspot approaches. We will also engage in an online modeling lab to assess how edge effects and landscape features such as corridors and stepping stones might affect an endangered species of butterfly survival.

MODULE 8: Conservation [July 24 - July 28]

During this module we will continue to assess conservation schemes including the key role of the local community in wildlife conservation and highlighting both high- and low-tech conservation tools that protect biodiversity.

INFORMATION ABOUT TOOLS AND TECHNICAL REQUIREMENTS

As a Georgetown student your online classroom experience will be very different but just as rigorous as your residential student experience. You can expect to:

- Communicate with your professor and classmates regularly via email, discussion boards, and other technologies available.
- Navigate the internet using a web browser (note that certain tools may require a specific browser).
- Use applications such as Microsoft Office or Google Docs to create documents and work on projects.
- Submit assignments in Canvas.
- Upload and download saved files (including text, audio, and video).
- Use a microphone to record audio.
- Use a webcam to record video.



COMPUTER REQUIREMENTS

- You will need access to a computer (Windows or Mac) and adequate Internet service to complete this course. Although you can use other devices such as smartphones and tablets for some online coursework, please note that some tools, such as Proctorio, do not work on tablets or smartphones.
- You will also need an internal or external microphone and camera to complete this course. While you can use any browser to access Canvas please note that some tools only work with certain browsers (e.g., Proctorio only works with Chrome).

The minimum requirements needed to use Canvas can be found in this [Canvas guide](#).

COURSE POLICIES AND EXPECTATIONS

STUDENT EXPECTATIONS

You are expected to complete all readings, assignments, and activities on time. Participation is essential to your success in this class. You are expected to actively participate in discussions with your peers, and contribute to the group assignments. It is important to subscribe to the course discussion boards so that you receive notifications when new messages are posted. In order to get full credit for participation, you will have to complete all of your module assignments and quizzes on time.

TIME EXPECTATIONS

Our remote learning courses are designed to meet the same academic standards as our place-based (face-to-face) courses. Students should plan on spending approximately 10-12 hours a week on assignments, readings, projects, etc. in addition to the 4.5 hours of asynchronous instructional time.

COMMUNICATION EXPECTATIONS

Building an inclusive climate of mutual respect and inquiry in this class:

I respect your right to be called whatever you want to be called, because I understand that for all of us, social recognition of our sense of self is key to our own integrity and flourishing. I expect everyone in the class to do the same. **In particular, if you would like to be called by a specific set of pronouns or name that might not be obvious from your official school records, please let me know in any way that makes you comfortable.**

Georgetown's Trans, Non-Binary, and Gender Non-Conforming Resource Guide:

<https://lgbtq.georgetown.edu/resources/transatgu/>

Communication with Peers

You will be expected to engage with your peers via the discussion board and other required tools on a regular basis.

Communication with Professor

Please feel free to email me with your questions, concerns, and/or to schedule a time to meet over Zoom.

If you have general questions about assignments and course materials, please post these questions in the General Question Discussion Board Forum which you can access by clicking *Discussions* in the course navigation menu. This is an open forum, and you are encouraged to give answers and help each other.



- *Check the syllabus.* Before sending your email or message, be sure that your question has not already been addressed in the syllabus or announcements.
- *Be patient.* If you have a concern and send me a message, you can expect a response within 1 business day. Please allow 5-7 business days for assessment submission feedback.

Netiquette Guidelines

To promote the highest degree of education possible, we ask each student to respect the opinions and thoughts of other students and be courteous in the way that you choose to express yourself. Students should be respectful and considerate of all opinions.

In order for us to have meaningful discussions, we must learn to genuinely try to understand what others are saying and be open-minded about others' opinions. If you want to persuade someone to see things differently, it is much more effective to do so in a polite, non-threatening way rather than to do so antagonistically. Everyone has insights to offer based on his/her experiences, and we can all learn from each other. Civility is essential.

Late Work Policy

Assignments are due on the posted deadline. Please note that **5% per day will be deducted for unexcused late assignments.** Assignments over 14 days late will receive a "0". Assignments are considered late if they are not submitted electronically via Canvas by the due date and time. **Late Pre-class assignments and discussion posts will be subject to a 40% penalty** as the purpose of these assignments is to prepare and/or engage students for in-class discussions and exercises.

ACCOMODATIONS

Students with Disabilities

Under the Americans with Disabilities Act (ADA) and the Rehabilitation Act of 1973, individuals with disabilities have the right to specific accommodations that do not fundamentally alter the nature of the course. Some accommodations might include note takers, books on tape, extended time on assignments, and interpreter services among others. Students are responsible for communicating their needs to the [Academic Resource Center](mailto:arc@georgetown.edu), the office that oversees disability support services, (202-687-8354; <https://academicsupport.georgetown.edu/disability/>) before the start of classes to allow time to review the documentation and make recommendations for appropriate accommodations. The University is not responsible for making special accommodations for students who have not declared their disabilities and have not requested an accommodation in a timely manner. Also, the University need not modify course or degree requirements considered to be an essential requirement of the program of instruction. For the most current and up-to-date policy information, please refer to the [Georgetown University Academic Resource Center website](#). Students are highly encouraged to discuss the documentation and accommodation process with an Academic Resource Center administrator.

Accessibility and Inclusion

One of the central tenets of Georgetown's educational mission is *cura personalis*, a Latin phrase meaning "care of the whole person." Georgetown is committed to showing care and concern for each student by creating an inclusive and accessible learning environment that follows universal design principles to meet the needs of its diverse student body.

I am committed to creating a learning environment for my students that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion,



ability, etc.). If your name or pronoun needs to be corrected, please let me know early in the semester so that I can make the appropriate changes to my records.

ACADEMIC INTEGRITY

Students at Georgetown University are expected to maintain the highest standards of academic and personal integrity. Although most Georgetown students conduct themselves in accordance with these standards, occasionally, there are students who violate the code of conduct. Cheating harms the University community in many ways. For example, honest students are frustrated by the unfairness of cheating that goes undetected and students who cheat can skew the grading curve in a class, resulting in lower grades for students who worked hard and did their own work.

Academic dishonesty in any form is a serious offense, and students found in violation are subject to academic penalties that include, but are not limited to failure of the course, termination from the program, and revocation of degrees already conferred. All students are expected to fully adhere to the policies and procedures of [Georgetown's Honor System](#) and to take the Honor Code Pledge.

Honor Code Pledge

In pursuit of the high ideals and rigorous standards of academic life I commit myself to respect and to uphold the Georgetown University honor system:

- *To be honest in every academic endeavor, and*
- *To conduct myself honorably, as a responsible member of the Georgetown community as we live and work together.*

Plagiarism

Stealing someone else's work is a terminal offense in the workplace, and it will wreck your career in academia, too. Students are expected to work with integrity and honesty in all their assignments. The Georgetown University Honor System defines plagiarism as "the act of passing off as one's own the ideas or writings of another." More guidance is available through the [Gervase Programs](#). If you have any doubts about plagiarism, paraphrasing, and the need to credit, check out [Plagiarism.org](#).

All submissions must be your original work. Any submission suspected of plagiarism will be immediately referred to the Honor Council for investigation and possible adjudication. All students are expected to follow Georgetown's honor code unconditionally. If you have not done so, please read the honor code material located online at the [Honor Council website](#).

SUPPORT SERVICES

Georgetown recognizes that COVID-19 has a significant impact on everyone in the Georgetown community. Georgetown offers a variety of support services for students that can be accessed online and has put together [this newsletter](#) which aims to provide you with information about well-being resources and virtual meetings that can connect you with mental health professionals on and off campus during this time. Below are some resources available to you:

- [Academic Resource Center](#)
202-687-8354 | arc@georgetown.edu
- [Counseling and Psychiatric Services](#)
202-687-6985



- [Institutional Diversity, Equity & Affirmative Action \(IDEAA\)](#)
(202) 687-4798

Title IX/Sexual Misconduct

Georgetown University and its faculty are committed to supporting survivors and those impacted by sexual misconduct, which includes sexual assault, sexual harassment, relationship violence, and stalking. Georgetown requires faculty members, unless otherwise designated as confidential, to report all disclosures of sexual misconduct to the University Title IX Coordinator or a Deputy Title IX Coordinator.

If you disclose an incident of sexual misconduct to a professor in or outside of the classroom (with the exception of disclosures in papers), that faculty member must report the incident to the Title IX Coordinator, or Deputy Title IX Coordinator. The coordinator will, in turn, reach out to the student to provide support, resources, and the option to meet. [Please note that the student is not required to meet with the Title IX coordinator.]. More information about reporting options and resources can be found on the Sexual Misconduct Website: <https://sexualassault.georgetown.edu/resourcecenter>.

If you would prefer to speak to someone confidentially, Georgetown has a number of fully confidential professional resources that can provide support and assistance. These resources include:

- Health Education Services for Sexual Assault Response and Prevention: confidential email sarp@georgetown.edu
- Counseling and Psychiatric Services (CAPS): 202.687.6985 or after hours, call (833) 960-3006 to reach Fonemed, a telehealth service; individuals may ask for the on-call CAPS clinician.

More information about reporting options and resources can be found on [the Sexual Misconduct Website](#).

Title IX/Pregnancy and Parenting Accommodations

Georgetown University is committed to creating an accessible and inclusive environment for pregnant and parenting students. Students may request adjustments based on general pregnancy needs or accommodations based on a pregnancy-related complication. Specific adjustments will be handled on a case by case basis and will depend on medical needs and academic requirements. Students seeking a pregnancy adjustment or accommodation should follow the process laid out on the [Title IX website](#).

Discrimination based on sex, including sexual misconduct and discrimination based on pregnancy or parenting status, subverts the University's mission and threatens permanent damage to the educational experience, careers, and well-being of students, faculty, and staff.

OFFICE OF THE STUDENT OMBUDS (OSO)

Confidential | Independent | Impartial | Informal

The Office of the Student Ombuds (OSO) serves all undergraduate and graduate students, including SCS and BGE, on the main campus. Consider contacting the Student Ombuds when you want to talk to a caring professional about a University-related issue but don't know where to turn. The OSO is a confidential and safe space that is independent of formal university organizations or structures where students can discuss their concerns, share their experiences, ask questions and explore their options. The student ombuds can help you problem-solve, identify your goals, and empower you to think through ways to navigate complex situations. Some reasons for you to visit the office may be to address academic concerns, clarify administrative policies, discuss interpersonal conflicts, seek coaching, mediation or facilitation to handle a sensitive situation, advise you on the process to file a formal



complaint if you are experiencing bias, harassment, bullying or other forms of intimidation, identify other appropriate campus resources, and allow you to safely express your frustrations and concerns.

Request an in-person or zoom appointment with the Student Ombuds by writing studentombuds@georgetown.edu or calling 202-784-1081. The OSO is located in Room 207 of the Reiss Building (across from Arrupe Hall). Find more information at <http://studentombuds.georgetown.edu>.

GEORGETOWN LIBRARY

If you have a question for a librarian you can go to their [“Ask Us”](#) page where you will have the option to chat online, send an email, or schedule a Zoom appointment to discuss a research topic, develop a search strategy, or examine resources for projects and papers. Librarians offer an overview of and in-depth assistance with important resources for senior or master's theses, dissertations, papers and other types of research. This service is available to currently enrolled students who need assistance with Georgetown-assigned projects and papers. Please review the [Services & Resources Guide for Online Students](#) for additional information.

ERESOURCES

Students enrolled in courses have access to the University Library System's eResources, including 500+ research databases, 1.5+ million ebooks, and thousands of periodicals and other multimedia files (films, webinars, music, and images). You can access these resources through the [Library's Homepage](#) by using your NetID and password.

LEARNING RESOURCES

Georgetown offers a host of [learning resources](#) to its students. Two that you might find particularly helpful in this course are the [Writing Center](#) and [Refworks](#).

- [The Writing Center](#) offers peer tutoring by trained graduate and undergraduate students who can assist you at any point in the writing process. They help at any stage of your writing process, from brainstorming to revision. Tutors can offer advice on thesis development, use of evidence, organization, flow, sentence structure, grammar, and more. The Writing Center will not proofread or edit papers; rather, they will help to improve your proofreading and editing skills to become a better writer. Appointments can be booked online through their website.
- [Refworks](#) is an online research management tool that aids in organizing, storing, and presenting citation sources for papers and projects.

TECHNICAL SUPPORT

All students have 24/7 access to Canvas technical support 24 hours a day, 7 days a week, including live chat and a support hotline at 855-338-2770. Use the 'Help' icon in the lower left of your Canvas window to view all available support and feedback options. If you're looking for help on a specific feature, check out the [Canvas Student Guide](#).