

CONSEQUENCES OF BIOLOGICAL INVASIONS/ TOPICS OF BIOLOGICAL INVASIONS

ALS 4162/6935

3 CREDITS

INSTRUCTOR INFORMATION

Instructor Contact Information & Hours

Dr. Nicole F. Quinn (nicole.quinn@ufl.edu)

Teaching Assistants

TBD

Please contact all instructors via canvas.

Office hours: by request via Zoom

GENERAL INFORMATION

Course Description

This course provides an overview of non-native species invasions and the environmental effects of these invaders. Students will acquire a working knowledge of important global invaders and develop critical thinking skills for assessing the consequences of biological invasions.

Purpose of Course

“The invasion of non-native species into new ecosystems is accelerating as the world’s human population multiplies and goods are transported ever more rapidly on an increasing global scale. The impact of invasive species is second only to that of human population growth and associated activities as a cause of the loss of biodiversity throughout the world” (Pimentel 2011). In this course, a number of important invasive species representing a range of taxa will be examined from a global perspective, with a focus on the ecological, economic, and social drivers of biological invasions.

Learning Goals and Objectives

The goal of the course is to instill an appreciation of the global economic and environmental drivers and impacts of biological invasions.

After completing this course, students will be able to:

- Describe the ecological, economic, and social processes underlying biological invasions
- Describe the principles and basic practices of pest exclusion, eradication, and management tactics for biological invaders.
- Synthesize information on previous and ongoing biological invasions and predict

future invasions.

Prerequisites

- Integrated Principles of Biology 1 and Laboratory (BSC 2010 and 2010L)
- Integrated Principles of Biology 2 and Laboratory (BSC 2011 and 2011L) or equivalent

Course Website

The course content, including narrated lectures, assigned readings, examinations, discussions and assignments, will be available through the course website in Canvas at <https://elearning.ufl.edu/>. Each week, students are required to view the narrated lectures and associated readings, participate in the discussions, and take the assignments, and examinations prior to the assigned due dates in order to complete the course requirements. Weekly modules will be available by 8:00 am on Monday of the module week.

Course Communications

The primary mode of communication for this course is via Canvas. Please send all questions to instructors through the course Canvas page.

COURSE MATERIALS

Textbooks/Readings

The following textbooks are required for this course. They are available for free through the University of Florida library course reserves.

Lockwood, Julie L., et al. *Invasion Ecology*, John Wiley & Sons, Incorporated, 2013. *ProQuest Ebook Central*, <https://ebookcentral.proquest.com/lib/ufl/detail.action?docID=1166783>.

Poland, T. M., Patel-Weynand, T., Finch, D. M., Miniati, C. F., Hayes, D. C., & Lopez, V. M. 2021. *Invasive Species in Forests and Rangelands of the United States: A Comprehensive Science Synthesis for the United States Forest Sector*. 455pp.
<https://link.springer.com/content/pdf/10.1007%2F978-3-030-45367-1.pdf>

Additional Resources:

- 1) <https://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Our-Forests/Forest-Health/Invasive-Non-Native-Plants/Invasive-Non-native-Plant-Links>
- 2) <http://edis.ifas.ufl.edu/>
- 3) <http://www.invasive.org/>
- 4) <http://www.fleppc.org/index.cfm>
- 5) <http://tncinvasives.ucdavis.edu/>
- 6) <http://www.iucngisd.org/gisd/>
- 7) <http://www.invasivespeciesinfo.gov/>

See last page of this document.

COURSE SCHEDULE

Disclaimer: This syllabus represents current course plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected.

COURSE POLICIES

Attendance Policy

This is an online class. Students are, therefore, required to view the weekly narrated lectures and the associated readings each week. You will NOT be allowed to take the exam after the exam due date ***unless prior arrangements have been made.*** Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:
<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

Assessments and Course Requirements

Each week, readings, recorded lectures, and other materials will be assigned. There are 2 examinations, 12 graded discussions, and 3 other assignments to complete the course requirements (survey and iNaturalist assignment required for all students; the invasive species video assignment is required for graduate students only).

Survey

Your first assignment will be to complete a survey to gather important baseline information for the functioning of the course. The link to the survey can be found here:

<https://forms.gle/mamP8d88biFvcR3a7>. This assignment is worth 25 points.

Examinations

All exams are open book/resource/internet. There are two Exams, each worth 100 points:

- Midterm Exam: Modules 1 through 7
- Final exam: Comprehensive (all modules)
- Exams will consist of multiple choice, short answer writing, long form writing, and other submission types (e.g. video, photo, etc.).
- Exam questions and your responses can be sourced from assigned required materials, assigned supplemental materials, or any other outside source **even if not provided within the course**, so long as the source is viable, reputable, and freely available to University of Florida students via the library or other methods. For example, I could base an exam question off a peer-reviewed paper related to course topics that we have covered. You could cite a published book in your answer, but you would not be able to cite Facebook post. If you have questions about which sources are ok to use, please ask!

- Exams will be available for completion for two weeks. Given this lengthy window, **late submissions will not be accepted (NO EXCEPTIONS).**
- Exams must be completed independently (i.e. without the help or input of peers, faculty, or other people).
- You must provide in-text citations and list full references for each response.
- Artificial Intelligence (AI) tools (such as ChatGPT) may be used. However, you must attach a log of the prompts used and your interactions with the AI. **Failure to provide this information will result in a score of 0 for the Exam question.** Remember, AI tools are not infallible; using AI does not guarantee correctness. Guidelines for citing AI can be found here: <https://guide.unwsp.edu/c.php?g=1306467&p=9601790>
- **If cheating or dishonesty in any form is suspected, you will receive a score of 0 for the ENTIRE Exam.**

Discussions

Both methods of completing this assignment are equal in point and learning value.

There are 12 discussion assignments (15 points each) throughout the course. Discussion of the weekly module topic will take place via Zoom. **All discussions will be recorded.** A scheduling poll will be sent to the class at the beginning of the semester to identify the time(s) that work for the majority of students and instructors. Each discussion session will be 60 minutes duration. Credit for discussion assignments can be earned in one of two ways:

Option 1 (synchronous): attend the discussion session and ask at least one thoughtful question or contribute at least one thoughtful comment.

Participation via chat or verbally is permitted, with verbal preferred. You must attend the entire discussion period to receive credit.

Option 2 (asynchronous): view the recorded class discussion write a 250-500 word summary of the discussion (50% of assignment grade), including your own thoughts and reflections (50% of assignment grade). This assignment must be submitted before the start of the next discussion session. **Late submissions will not be accepted.**

You will only receive credit for one of the discussion assignment types per week (i.e.: do not do both Option 1 and Option 2 in a given week. **You will not receive additional points).**

You may use both Option types throughout the semester (example: maybe on weeks 1-6 you were able to attend the live session and do Option 1, but for weeks 8 and 10 you chose to do Option 2 instead).

Your lowest discussion grade will be dropped.

Invasive Species Safari Bingo

Invasive species are all around us! In this assignment, you will document invasive species activity in video or photo format to share with the class. Additional details will be

provided.

For Graduate Students ONLY:

Graduate students are required to create a short, educational video on an invasive species of their choice. The instructor and/or the TAs will provide more information.

Extra Credit

There is no extra credit offered for the course.

Additional help:

There are no office hours for this course, since it is online, but students can message the instructor or the TAs or have appointments for a conference call with the TAs or instructor through Canvas.

Please read through the following Honor Code that students must abide by for this course and attendance at the university, which can be found here:

<https://catalog.ufl.edu/ugrad/1617/advising/info/student-honor-code.aspx>

GRADING POLICIES

Final grades will be converted to percentages. Performance on the following assessments will determine the final grade:

Assessment	Undergraduate			Graduate		
	Point Value	Total Points		Point Value	Total Points	
Survey	25	25		25	25	
Discussions	15 each (12 total, lowest score dropped)	165		15 each (12 total, lowest score dropped)	165	
Exams	100 each (midterm and final)	200		100 each (midterm and final)	200	
Invasive Species Bingo		90			90	
Invasive species video	n/a	n/a		100	100	
Total		480			580	

Grading Scale

Grade	Percentages
A	93 – 100
A-	90 – 92.9
B+	87 – 89.9
B	83 – 86.9
B-	80 - 82.9
C+	77 - 79.9
C	73 - 76.9
C-	70 - 72.9
D+	67 - 69.9
D	63 - 66.9
D-	60 - 62.9
E	<59.9 and below

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. These evaluations are conducted online at <https://evaluations.ufl.edu> . Evaluations are typically open for students to complete during the last two or three weeks of the semester; students will be notified of the specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.

UNIVERSITY OF FLORIDA POLICIES AND ASSISTANCE

Grades and Grade Points

For information on current UF policies for assigning grade points, see <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Academic Honesty

The University requires all members of its community to be honest in all endeavors. Cheating, plagiarism, and other acts diminish the process of learning. When students enroll at UF they commit themselves to honesty and integrity. Your instructor fully expects you to adhere to the academic honesty guidelines you signed when you were admitted to UF.

Plagiarism is the use of ideas or writings produced by someone else. You should not use the writings of another person, including material from the internet (WWW), without putting the ideas in your own words, or placing the copied material in quotes and

attributing authorship. In the scientific literature, quotations are rarely used. You should use your own words for answering questions on exams, and in your class project.

As a result of completing the registration form at the University of Florida, every student has signed the following statement:

"I understand the University of Florida expects its students to be honest in all their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with this commitment may result in disciplinary action up to and including expulsion from the University. "Furthermore, on work submitted for credit by UF students, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

All work must be completed independently unless the assignment is defined as a group project, in writing by the instructor. This policy will always be vigorously upheld in this course.

Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to the appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:
<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code>

Software Use

All faculty, staff, and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Artificial intelligence (AI) use policies

The use of artificial intelligence tools is permitted in this course, provided students properly attribute and cite their work. See the following guide for best practices:
<https://guide.unwsp.edu/c.php?g=1306467&p=9601790> . Violations, cheating, dishonesty, or carelessness with these tools, whether suspected or confirmed, will result in a score of 0 for the question or assignment. **NO EXCEPTIONS.**

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment,

providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation 0001 Reid Hall, 352-392-8565, www.dso.ufl.edu/drc/

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general wellbeing are encouraged to utilize the university's counseling resources. The Counseling Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal or lacking clear career and academic goals, which interfere with their academic performance.

- The University Counseling and Wellness Center, 3190 Radio Road, 352-392-1575 www.counseling.ufl.edu
 - Counseling Services
 - Groups and Workshops
 - Outreach and Consultation
 - Self-Help Library
 - Wellness Coaching
- U Matter We Care, www.umatter.ufl.edu/
- Career Resource Center, First Floor JWRU, 392-1601, <https://career.ufl.edu/>

Instructional materials for this course consist of only those materials specifically reviewed, selected, and assigned by the instructor(s). The instructor(s) is only responsible for these instructional materials.

See next page for course schedule

COURSE SCHEDULE

Module/Week	Topic	Required reading (suggested reading list will be provided in lectures)	Discussion assignment (due following Thursday at 10am)	Other Assessments
1	Introduction to invasion ecology	Lockwood (Preface-Chapter 1)	-	Complete survey
2	Transport vectors and pathways	Lockwood (Chapter 2)	1	-
3	Trends in numbers of invaders	Lockwood (Chapter 3)	2	-
4	Propagules	Lockwood (Chapter 4)	3	-
5	Disturbance	Lockwood (Chapter 5)	4	-
6	Establishment success	Lockwood (Chapter 6)	5	-
7	Modeling invasive species spread	Lockwood (Chapter 7)	6	Midterm exam <u>available</u>
8	Ecological processes and invasive species spread	Lockwood (Chapter 8)	7	Graduate students only: Invasive species video due
9	Ecological impacts	Lockwood (Chapter 9)	8	Midterm exam <u>due</u>

10	Impact synthesis	Lockwood (Chapter 10); Watch graduate student invasive species videos	9	-
11	Evolution of invaders	Lockwood (Chapter 11)	10	-
12	Predicting and preventing	Lockwood (Chapter 12)	11	Invasive species safari bingo submissions <u>due</u>
13	Eradication and control	Lockwood (Chapter 13)	12	Final exam <u>available</u>
14	Global change and invasive species	Lockwood (Chapter 14)	-	-
15	-	-	-	Final exam <u>due</u> Monday
16	-	-	-	Exams graded this week

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