AEC 592 – Genetics of Invasive Species
Meetings Monday 1:30 to 2:45pm

Course Description
This graduate seminar will explore the genetic tools used to identify and monitor invasive species. We will focus on current papers using a variety of genetic approaches to the conservation of species impacted by invasion or the identification and management of invasive species.

Optional Text
Invasion Genetics: The Baker and Stebbins Legacy. Edited by Spencer CH Barrett, Robert I. Coautti, Katrina M. Dlugosch, Loren H. Rieseberg. 2016. Wiley-Blackwell

Amazon Link: https://www.amazon.com/Invasion-Genetics-Baker-Stebbins-Legacy/dp/1118922166/ref=sr_1_2?s=books&ie=UTF8&qid=1499096794&sr=1-2&keywords=Invasion+Genetics

Website
http://burfordreiskind.com/teaching/genetics-of-invasive-species/

Instructor
Dr. Martha Burford Reiskind
David Clark Labs 126
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Office hours are also available by appointment!!!

Objective
- **Describe** & **Discuss** the genetic and genomic characteristics of invasive species and the response of native species to introductions
- **Lead** discussions based on topics in the genetic characteristics and conservation genetic approaches to understanding species invasion
- **Produce** a plan for a review manuscript on several topics addressed during the seminar

Grading

I. Discussion Leader (100 points):

For one week this semester you will sign up to be discussion-leader with another person. This will include one review or more theoretical-based paper and one shorter contemporary paper, which can include genetic methodologies or case studies. You'll need to choose these papers the week before your discussion so that other members of the seminar have time to read and review it. We will have all papers uploaded to a share drive, which already has several landscape genetic papers in it organized in different categories. If you have a paper that is not listed in one of these folders, make sure that it is in a peer reviewed journal and if it is from 2016 or earlier that it has been cited at least 3 times.

As a discussion leader, we expect you to have a thorough knowledge of the papers, which may mean reading additional papers referenced in the discussion paper. All tables and figures should be understood and you should be able to explain them. You will be expected to (1) provide a brief overview of the paper or chapter including important contributions or results and/or applications (2) provide how both papers are connected, and (3) have several discussion points "in your pocket" that will start and keep discussions going throughout the seminar. Often discussions will take on a life of their own and the discussion leaders will occasionally re-direct the discussion with leading questions.

You will be graded on the three points above and on your ability to keep the discussion on topic and productive. This part of the course is worth 100 points. The points will be assigned in the following manner:

- 100 points: *Provides a brief and clear overview, able to summarize the important points of the readings, show how discussion readings are connected and excellent discussion points.*
- 50 points: *Partially provides information on the aforementioned topics*
- 0 points: *Does not provide any of the aforementioned topics*

II. Discussion participation (80 points):

Participants in this course should read all the papers assigned and be prepared to discuss these papers. Each student should bring 3 or more questions per reading that can be used to contribute to the discussion, anything from open-ended questions about the topic to specific questions. These will be turned into Dr. Reiskind before the discussion, via email. Typically students turn their questions in the evening before or the morning of the discussion. I provide these questions to the discussion leader so they can see what topics the class is interested in.

This part of the course is worth 100 points. The points will be assigned in the following manner:

- 80 points: *Regularly contributes to class discussions by raising thoughtful questions, providing examples from the readings or text, building on others' ideas, expanding the class' perspective, and appropriately challenging others' assumptions and perspectives*

40 points: *Sometimes contributes to class discussions in the aforementioned ways*
0 points: *Never contributes to class discussions in the aforementioned ways*

III. Review Workgroup (20 points)

One of the goals for this course is to see whether we can generate a review article. In the past there have been several reviews that have addressed evolutionary questions about invasive species. However, other topics that I think would be interesting are evolutionary response of native species to invasive species, any evidence of rapid evolution, or the use of genetic control to invasive species. While the last topic has been reviewed but, perhaps, we could find a new angle. We will talk more about this when the class starts. The workgroup goal will be to pick topics and papers. For the actual review article writing, I will have a 1 credit hour special topics course for the Spring2018 to give us extra time. Only those students who are interested in writing it will register for that. For this extra credit topic in the Spring, we will only meet once a month.

20 points: *Active member of the review workgroup, contributes to both the identification of manuscripts and justifying the review*
10 points: *Sometimes contributes to workgroup in the aforementioned ways*
0 points: *Never contributes to workgroup in the aforementioned ways*

Tentative Schedule Fall 2017:

Week	Date	Subject	Readings	Leader
1	Week of the 22nd of August	Intro to the Genetics of Invasive Species, a genetic conundrum		MB Reiskind
2	28 Aug	Genetic Tools for understanding invasive species		
3	4 Sep	*Labor Day, No class this week*		
4	11 Sept	Genomic tools for understanding invasive species		
5	18 Sep	Evolution of Invasive Species		
6	25 Sep	Evolutionary ecology of Invasive species		
7	2 Oct	Control of Invasive Species		
8	9 Oct	Integrated Pest Management		
9	16 Oct	GMOs and invasive species		
10	23 Oct	Invasive species and climate change		
11	30 Oct	Native species & adaptations		
12	6 Nov	*No class this week Ento Soc Meeting*		
13	13 Nov	Review of current state of the genetics of invasive species		
14	20 Nov	Working groups for Review		
15	27 Nov	Working groups for Review		

Personal Information Sheet
Please fill out and turn in

Name: _____

Student ID Number: _____

Graduate Program:_____

Career Goals: _____

Research Interest: _____

What would you like to know more about in regards to landscape genetics: