

GGG 770 Genetics & Genomics Survey Course

Monday, Tuesday, Wednesday, and Thursday 11:45 to 1pm

Catalog Description: This graduate course is part of a first-year training program for Genetics & Genomics Scholars and the course provides a broad understanding of pivotal topics in the field of genetics and genomics. A background in concepts, methods, and advances in the field of genetics and genomics is provided and followed by critical analyses of the readings and primary literature and interactive discussions. This course will provide graduate students with direct and engaged contact with all the major areas of research at the forefront of this field while fostering an appreciation for where the field has been and what the big ideas are for the future. Students will work individually and in groups to develop a vision or white paper that capitalizes on this broad background to identify the next advances in the field of genetics and genomics.

Overview: The goal of this course is to provide students with a broad understanding of pivotal topics in the field of genetics and genomics. A background in concepts and methods is provided and followed by critical analyses of the readings and primary literature and by interactive discussions. This course will provide graduate students in the Genetics & Genomics Scholars program direct and engaged contact with all the major areas of research at the forefront of this field while fostering an appreciation for where the field has been and what the big ideas are for the future. The module topics will change year-to-year and will cover the breadth of topics in genetics & genomics. The modules are taken together as no single module is a complete course and they build off each other by design. This course will help to develop graduate student's critical thinking skills and build their capacity for collaborations. We believe in the capacity of all students to grow and learn and we strive to cultivate a growth mindset in the course.

Requirements: Graduate standing required and there is no textbook for this course

Instructor: Dr. Martha Burford Reiskind and Genetics & Genomics Initiative Faculty

Location: Thomas Hall 1510B

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Website: <http://burfordreiskind.com>

Phone: 919.515.3495

Office hours: Friday 10 am, ***office hours are also available by appointment. Do not hesitate to schedule time to meet with me individually or in a group. Faculty leading Modules will announce their own office hours at the beginning of their Module***

Overall Course Learning Outcomes

- **Summarize & critically review** pivotal papers and research in the field of genetics and genomics
- **Demonstrate** understanding of the material through participation in and leading of active discussions
- **Synthesize** the breadth of topics covered and **propose** the next big research questions in the field

Native Land Acknowledgement

We want to acknowledge that we are on the traditional territory of the Tuscarora, Coharie and Haliwa-Saponi here in Raleigh.

Inclusion Statement

We strive to create a learning environment that supports a diversity of thoughts, perspectives and experiences, and honors your identities (including race, gender, class, sexuality, religion, ability, etc.) To help accomplish this:

1. If you have a name and/or a set of pronouns that differ from what appears on official University records please let us know in person, via email, or on the personal information survey that you filled out before class
2. If you feel like your performance in the class is impacted by experiences outside of the class, please let us know in person, via email, or in the personal information survey that you filled out before class. We want to be a resource for you. You can also make an anonymous statement that we can share with the class.

We are still learning about diverse perspectives and identities, if something was said in class that made you feel uncomfortable please let me know. Anonymous feedback is always welcome and should be emailed to the Department head of Biological Sciences, Carolyn Mattingly (cjmattin@ncsu.edu) or the graduate student coordinator Jenni Wilson (jenni_wilson@ncsu.edu).

Course Logistics

This course will meet 4 days per week (M, T, W, TH) for 75 minutes. This course will be Team Taught by the GGI faculty and coordinated by Dr. Martha Burford Reiskind. The course will be broken up into 2 to 3-week modules outlined below. Learning outcomes are included for each Module. Please note that each module would not substitute for a semester long course on the same topic. ***Students are responsible for turning in all assignments on given dates, check the syllabus & website regularly.***

Grading: Total of 526 points

Group Discussions (Modules 1 -5): Total of 100 pts

For Group Discussions each student will sign up to lead one of the case study days. Because there are only a few discussion days, students will lead the discussion with another one to two students. In addition, each student will build two questions, or reflections before the class day and participate in discussion during the class when they are not a leader. Note **Group Discussions** are bolded in the schedule.

Discussion leader (20 pts / 1 discussion) **20 pts**

Discussion participant (10 pts/8 discussions) **80 pts**

Problem sets (Module 2): Total of 60 pts

Total of three problem sets worth 20 points each

Minute Papers (All modules): Total of 96 pts

A total of 12 minutes papers worth 8 points each. Details on the objective and logistics of the minute papers is explained in the course description following

Module Synthesis papers (Modules 2 through 5): Total of 80 pts

At the end of each of the modules, the students will build off the discussion on the last day and synthesize the module's topics. There are 4 synthesis papers

Vision or White Paper Group Project (Module 6): Total of 170 points

Students will work on a vision or white paper for their research, details follow

Draft of paper **20 pts**

Final write-up **80 pts**

Peer Review **20 pts**

Final presentation **50 pts**

Participation: Total of 20 pts

This is beyond the discussion participation, and what we are looking for is highlighted in the course description and in the first day of class.

The course uses Standard NCSU Letter Grading:

97 ≤ A+ ≤ 100	73 ≤ C < 77
93 ≤ A < 97	70 ≤ C- < 73
90 ≤ A- < 93	67 ≤ D+ < 70
87 ≤ B+ < 90	63 ≤ D < 67
83 ≤ B < 87	60 ≤ D- < 63
80 ≤ B- < 83	0 ≤ F < 60
77 ≤ C+ < 80	

Tentative Schedule Fall 2020: Any changes to this schedule will be communicated to students well in advance of any activities, due dates, or readings.

Wk	Dates	Instructor	Subject	Assignments this evening	What's due this day?
1	Module 1 M: 10 Aug	Martha Burford Reiskind	Introduction / Collaborative Classroom climate guidelines, learning objectives	Readings 1 & 2 / Syllabus review Complete online Assessment	
	T: 11 Aug	Burford Reiskind	Strategies for effective discussion leadership	Reading 3 History of genetics Posted for W	Questions related to readings (see details on Discussions)
	W: 12 Aug	Burford Reiskind	Group Discussion on Readings 1, 2 & 3 (Martha Leads)	Readings 4 & 5 (two picked for discussion)	
	Th: 13 Aug	Burford Reiskind	Group Discussion / Minute paper / Recap Group activity, answering our own questions		Questions related to readings (see details on Discussions)
2	Module 2 M: 17 Aug	Rafael Guerrero	Intro to genetic variation	Readings posted for Th Discussion	
	Tu: 18 Aug	Guerrero	Population structure	Work on Problem set	
	W: 19 Aug	Guerrero	Homework Q&A / Minute paper		Problem set due in class
	Th: 20 Aug	Burford Reiskind	Recap from minute papers / Group Discussion		Questions related to readings (see details on Discussions)
3	Module 2 M: 24 Aug	Guerrero	Coalescent Theory	Readings posted for Th Discussion	
	Tu: 25 Aug	Guerrero	Natural selection	Work on Problem set	
	W: 26 Aug	Guerrero	Demography / Minute paper		Problem set due in class
	Th: 27 Aug	Burford Reiskind	Recap from minute papers / Group Discussion		Questions related to readings (see details on Discussions)
4	Module 2 M: 31 Aug	Guerrero	Local adaptation and speciation		
	Tu: 1 Sep	Guerrero	Population genomics	Work on Homework	
	W: 2 Sep	Guerrero	Homework discussion / Minute paper		Problem set due in class
	Th: 3 Sep	Burford Reiskind	In class concept mapping of population genetics: What questions can we answer using population genetics?	Work on Synthesis Paper for Module 2 questions we can answer	

5	Module 3 M: 7 Sep	David Aylor	Historical perspectives on the epigenome	Readings on DNA and histone modifications	Synthesis for Module 2 due on Moodle
	Tu: 8 Sep	Aylor	Modifications of DNA and RNA and assaying DNA methylation	Topical Epigenomic / Readings posted for Th Group Discussion	
	W: 9 Sep	Aylor	Modifications of histones and chromatin / Minute paper		
	Th: 10 Sep	Burford Reiskind	Recap of the minute papers / Group Discussion	Readings on technologies	Questions related to readings (see details on Discussions)
6	Module 3 M: 14 Sep	Aylor	Resources: ENCODE and Roadmap		
	Tu: 15 Sep	Aylor	ChromHMM and functional elements	Readings on resources	
	W: 16 Sep	Aylor	Epigenetic memory and TaRGET/ Minute paper	Reading on epigenetic memory	
	Th: 17 Sep	Burford Reiskind	Recap of the minute papers / open discussion on challenging topics, what questions do you have?	Readings posted for M Group Discussion	Prepare a list of challenging topics
7	Module 3 M: 21 sep	Aylor	Population-level variation and GTEx/ Group Discussion	Readings on resources	Questions related to readings (see details on Discussions)
	Tu: 22 Sep	Aylor	Transgenerational epigenetic inheritance		
	W: 23 Sep	Aylor	Recap and Review / Minute paper		
	Th: 24 Sep	Burford Reiskind	Recap on minute papers / Module 3 Synthesis: How does a deeper understanding of Epigenomics advance the Field?	Work on Synthesis Paper for Module 3 Readings for Monday	
8	Module 4 M: 28 Sep	Christina Zakas	Genetic correlations	Readings posted for Tu / Readings posted for Th Group Discussion	Synthesis of Module 3 Due on Moodle
	Tu: 29 Sep	Zakas	Genetic architecture- Toolkits	Readings posted for Wed	
	W: 30 Sep	Zakas	Maternal genetic effects / Minute paper		

	Th: 1 Oct	Burford Reiskind	Recap of minute papers / Group Discussion	Readings posted for M	Questions related to readings (see details on Discussions)
9	Module 4 M: 5 Oct	Zakas	Life History evolution	Readings for Tu / Readings posted for Th Group Discussion	
	Tu: 6 Oct	Zakas	Developmental constraint and adaptations	Reading for Wed	
	W: 7 Oct	Zakas	Chance and necessity? / Minute paper		
	Th: 8 Oct	Burford Reiskind	Recap from minute papers / Group Discussion	Readings for M	Questions related to readings (see details on Discussions)
10	Module 4 M: 12 Oct	Zakas	EcoEvoDevo	Reading for Tu	
	Tu: 13 Oct	Zakas	Evolutionary Hotspots	Reading for Wed	
	W: 14 Oct	Zakas	Novelty/ Minute paper		
	Th: 15 Oct	Burford Reiskind	In class concept mapping of EvoDevo: What important questions can we answer using EvoDevo?	Module 4: Synthesis paper of EvoDevo applications	
11	Module 5 M: 19 Oct	Max Scott & Fred Gould	Introduction to Gene Drives	Reading on homing drives	Module 4 Synthesis paper due on Moodle
	Tu: 20 Oct	Scott & Gould	Unrestricted homing drives – general theory	Readings on examples of homing drives	
	W: 21 Oct	Scott & Gould	Unrestricted homing drives – proof of principal / Minute paper	Readings posted for Th Group Discussion	
	Th: 22 Oct	Gould & Burford Reiskind	Recap from minute papers / Group Discussion	Reading on suppressing resistance	Questions related to readings (see details on Discussions)
12	Module 5 M: 26 Oct	Scott & Gould	Unrestricted homing drives – suppressing resistance evolution	Readings on Medea	
	Tu: 27 Oct	Scott & Gould	Natural and Synthetic Medea	Reading on Media Modeling	
	W: 28 Oct	Scott & Gould	Medea – modeling / minute paper	Readings posted for Th Group Discussion	
	Th: 29 Oct	Gould & Burford Reiskind	Recap from minute papers / Group Discussion	Readings on killer-rescue	Questions related to readings (see details on Discussions)
13	Module 5 M: 2 Nov	Scott & Gould	Killer-rescue – modeling and proof of principal	Readings on under-dominance	

	Tu: 3 Nov	Scott & Gould	Underdominance – modeling and proof of principal	Reading on spatial-temporal models	
	W: 4 Nov	Scott & Gould	Complex spatiotemporal models / Minute paper		
	Th:5 Nov	Scott & Gould	Recap of minute paper / Concept mapping of Gene Drive: What important questions can we answer using Gene Drive?	Readings on Collaborative Science – NSF & NAS New Biology Initiative	
14	Module 6 M: 9 Nov	Burford Reiskind	How to build collaborative science across disciplines / Group work – what are the next big ideas in the field	Literature review on topic Readings 1, 2, & 3	Module 5 concept map & synthesis due on Moodle
	Tu: 10 Nov	Burford Reiskind	Groups report back on their big ideas breakout session	Work on paper	
	W: 11 Nov	Burford Reiskind	In Class Peer Review of Vision Paper	Work on group Vision or White Paper / Presentation	
	Th:12 Nov	Burford Reiskind	Presentation workshop	Work on group Vision or White Paper & Presentation	Turn in draft of written Vision or White Paper for peer review
15	Module 6 M 16 Nov- exam day	Burford Reiskind	Group presentations	Incorporate feedback Vision or White Papers	Turn in Peer Review

Turn in final group white paper on the last day of exams: Nov 20th at 11:59 pm

Course Module Description

The following gives more details on each of the modules. Please note that each module would not substitute for a semester long course on the same topic.

Module 1

GG Scholars course orientation & critical thinking skill development in the field of genetics & genomics

Duration – 1 week

Instructor: Martha Burford Reiskind

Learning outcomes:

- **Developing & practicing** the skills required for effective critiques of manuscripts
- **Differentiating** between constructive and unhelpful reviews
- **Contributing to & leading** group discussions of the scientific literature

This module introduces the course and provides a framework for learning in genetics and genomics. While expanding student understanding of the knowledge base underpinning the field by exploring seminal papers, important technological advances, and the variety of approaches to hypothesis testing, students will learn the critical skills for reading and reviewing the literature. In addition, students will take turns leading discussions on certain days. Students will take a course pre-assessment to compare to a post-assessment and to help figure out topics that students may feel weak on for breakout sessions. *For this module, students will be critiqued on both participation and leading of discussions. These critiques will be used by the students to hone their skills for discussions in Modules 2 through 5.*

Module 2

Molecular population genetics

Duration – 3 weeks

Instructor: Rafael Guerrero

Learning outcomes:

- **Practicing** the skills required for effective critiques of manuscripts
- **Contributing to & leading** group discussions of the scientific literature
- **Identifying** the core principles of population genetics
- **Relating** patterns in population genetic data to inferences about how populations evolve

We will discuss fundamental aspects of research in molecular evolution, from a population genetics perspective. The goal is to introduce the history and practice of theoretical population genetics and how it shapes how we study current genetic and genomic data. Each week will have three components: an introductory lecture, a problem set, and paper discussions. We will spend at least one hour per week working through the problems together and students will share their solutions with the class. The students will spend a separate session discussing one or two relevant/classic papers each week. Students will turn in assignments related to these papers in advance (answering questions given to them). *In this module, students will be graded on*

participating and leading discussions based on their reading assignments and problem sets

Module 3

Epigenomics

Duration – 3 weeks

Instructor: David Aylor & Colleagues

Learning outcomes:

- **Practicing** the skills required for effective critiques of manuscripts
- **Contributing to & leading** group discussions of the scientific literature
- **Identifying** major mechanisms of DNA and histone modification and their roles in gene regulation
- **Describing** how epigenomic modifications interact with genome architecture via the “epigenome code” at enhancers, promoters, and other regulatory elements
- **Analyzing** current literature in epigenomics and **debating** the strengths and limitations of experimental designs
- Critically **assessing** controversial concepts in epigenomics, including transgenerational inheritance and epigenetic memory

The epigenome describes the set of modifications to DNA and histone proteins that confer a cell’s identity and state. In this module, we will learn the current state of research in epigenomics at the molecular, cellular, and population scales. We will read a mix of review articles and experimental investigations and discuss the most important open questions in the field. *In this module, students will be graded on participation and leading of discussions.*

Module 4

Genetic advances in evolution & development

Duration – 3 weeks

Instructor: Christina Zakas & Colleagues

Learning outcomes:

- **Practicing** the skills required for effective critiques of manuscripts
- **Contributing to & leading** group discussions of the scientific literature
- **Describe** major goals and questions in the field of EvoDevo
- **Categorize & compare** the functions, pathways and relationships between genes and across species during embryogenesis

This Module introduces students to the history, goals, and questions in the field of Evolution and Development (EvoDevo). While expanding student understanding of the knowledge base underpinning the field by exploring seminal papers, important technological advances, and the variety of approaches to hypothesis testing, students will learn the critical skills for reading and reviewing the EvoDevo literature. *In this module, students will be graded on their participation and leading of discussion of their reading assignments*

Module 5

Concept and application of gene drives

Duration – 3 weeks

Instructor: Fred Gould and Max Scott

Learning outcomes:

- **Practicing** the skills required for effective critiques of manuscripts
- **Contributing to & leading** group discussions of the scientific literature
- **Describing** various gene drive systems including their strengths and weaknesses for diverse applications
- **Comparing & Contrasting** how different fields of genetics, genomics, and mathematical modeling can be combined to address real world problems

In this Module, students will synthesize across the various topics highlighted in the previous modules to investigate and appreciate how the combined understanding of the fields of molecular, developmental, evolutionary and population genetics can be critical for addressing real world problems. The biology and evolution of natural, selfish genetic elements that inspired development of synthetic gene drive systems. These gene drives aim at replacing disease vectoring insect strains with more benign genotypes, and also aim at suppressing populations of these insects and other pests. Within this module, students will learn how population genetics and evolutionary genetics inform the design of various gene drives and how knowledge of molecular and developmental genetics guide the engineering of gene drives. Students will assess the strengths and weaknesses of various gene drives for addressing specific problems. *In this module, students will be graded on the participation and leading of discussions related to their reading assignments*

Module 6

Synthesis of the state of and the next big ideas in the field of genetics & genomics

Duration – 1 week

Instructor: Martha Burford Reiskind

Learning outcomes:

- **Synthesizing** the breadth of topics covered and **proposing** the next big research questions in the field
- **Collaborating on & designing** a research plan for the next big question
- **Writing** a group proposal or vision paper and **presenting** the project to the class

This module will explore and integrate the concepts and methodologies learned in earlier modules and apply them to topical research. Students will review several case studies through interactive discussions to help students propose the next big ideas, technologies, and experiments in the field of genetics & genomics. The focus will be on synthesizing material from the breadth of topics covered during the course to address these questions and ideas and propose a research plan for the next big ideas. *In this module, students will be graded on their group contribution, their peer reviews, their written paper, and their presentation.*

Further Description Course Activities:

General Participation

Objective:

This course has a participation component beyond the part built into the case study discussions. The goal is for all students to be actively engaged in learning during the class period. If students are absent from the class they will not be able to participate. If they are present, but otherwise engaged, this will also affect their participation points. We will talk in detail, including specific examples, of what goes into this part of your grade on the first day of class so that students know what the expectation is. We will also discuss how to be a good team member before we start the group activities, such as in class concept mapping, in class peer reviews, and big idea brainstorming sessions so that you know what that expectation is. Every Wednesday night, we will put together a list of questions from the student's minute papers to help lead Thursday's discussion and synthesis of the week's activities.

Logistics:

This part of the course is worth 20 points. The points will be assigned in the following manner:

20 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*

10 points: *Sometimes contributes to class discussions in the aforementioned ways*

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

Group Discussions:

Objective:

The goal is to expose you to a variety of approaches to genetic research, to the scientists doing the research, and to expand your scientific literacy. Topics of the discussions are individual case studies or research papers that fit within the module. Students will also get the opportunity to lead and participate in discussions on these case studies or papers, helping them delve deeper into the topics. Their questions will stimulate the in-class discussion. In some cases, a visiting researcher who works on this particular subject will provide a short background and help facilitate the discussion.

Logistics:

Students will be given readings on a case study or research topic and they will craft two, well thought-out questions related to each of the readings, and one response to one of their peer's questions. We will talk about examples of questions in class. Students will be evaluated on the quality of their questions and their participation in the discussion during class. Their **questions** will be posted at least **two days** before the discussion and **responses** will be posted at least **one day** before. Groups of one to two students will sign up to lead a discussion day throughout the course.

The specific breakdown is 2 points per question (total of 6) and 4 points for participation for a total of 10 points per discussion day. As group leader, students will be evaluated

on effective leadership of the discussion including a quick summary of the case study or papers, keeping the discussion moving and on track, and monitoring the classroom climate. Discussion leaders will receive a total of 20 points for their day. Note Dr. Martha Burford Reiskind will lead the first Group Discussion to help solidify the expectations of leading a discussion.

Minute Papers:

Objective:

At the end of Wednesday's class period, we will provide you with an index card or piece of paper and you will answer three questions with one to two sentences related to the lecture, discussion and/or demonstration on that day. The goal of this is to get a quick assessment of how well you understood the material, what questions remain and what you would like to hear more about. This will provide a framework for Thursday's synthesis day.

Logistics:

Here are the five questions you will answer: *What was the main thing you learned this week? What do you have questions about that we covered this week, what were the muddiest points? Can you synthesize what you learned this week? What would you like to hear more about? Any issues that came up for you during the class?*

Module 2 Homework (problem sets)

Objective:

The goal of homework assignments is to confirm and practice understanding of basic population genetic concepts. In general, the field population genetics is based on probability and a basic understanding of mathematics, and therefore the proper way to learn this field is to practice problem sets. These problem sets will solidify a student's understanding of the concepts covered in the lecture.

Logistics:

There are three different problem sets in Module 2 and each will be provided via the course website. Students will work through these problems sets on their own and with the instructor in class. The goal is to provide ample time to go through the problems sets so the students are more comfortable with these basic concepts early in the course.

Module Synthesis for Modules 2 through 5

Objective:

The Module Synthesis papers will integrate the topics within the specified Module as students progress through the semester. These will help students not only solidify their understanding of the material but help make connections. As we progress through the semester, the synthesis papers will likely help integrate across the different Modules and will set the stage for the final vision or white paper at the end of the class. In addition, because the Module Synthesis papers are crafted individually, it will help students work on the writing process and find their own voices. One of the critical skills in a scientific career is the ability to integrate across topics and find overarching themes. Synthesis papers are one way we can develop this skill.

Logistics:

Students will provide a no more than 600-word Synthesis to an online forum on Moodle. This could also be a two slide diagram of the information. We will discuss more about what this could look like in class. It should be completed before the start of the next Module. There are a total of 4 Module Synthesis papers.

White Paper in Module 6

Objective:

Building off the first 5 modules in Module 6 we will work on addressing the “big” questions in the field of genetics & genomics. The paper here will be generated as part of a collaborative group, or teams, based on students collecting under different subjects they generate in the first part of Module 6. The goal is for the students to practice the process of collaborations from idea generation to putting together the white paper. This activity will follow the design of the National Science Foundation (NSF) sponsored Jumpstart Meetings on “Reintegrating Biology” held in the fall of 2019. The goal is for students to work in collaborative groups across the disciplines represented by the GG Scholars cohort and produce a collaborative piece. We will focus by addressing the following: (1) what are the exciting new research questions in genetics & genomics that could be addressed by combining approaches and perspective from different disciplines, (2) given these questions what are the challenges or knowledge gaps that we have to address to answer these questions, (3) if we could answer these exciting research questions how would this advance the field (downstream advances)?

Logistics:

We will work in different breakout sessions to develop a list of big questions and then organize around these topics. Students will work in groups to develop those questions. Students will critique and review each other’s approaches to these questions in class and then on the written vision or white paper. These papers will be at a minimum of five double-spaced pages not including references and figures. The students will co-created the final paper within their collaborative group and give a short presentation as a group. We will discuss more about this at the beginning of the semester.

Peer Review:

Objectives:

There are two objectives for the peer review activities in this course. First, to give effective and constructive feedback, which requires practice but will enhance the way students read and review their own assignments or writing, and critical review papers in their field. The second objective is for students to learn how to receive critiques and incorporate those into revision and modifications.

Logistics:

We will have several opportunities to review and be reviewed in this course. There are several opportunities to work on reviews, but the main peer review activity will be related to the group papers (vision or white paper) that will be part of Module 6.

Expectations & Policies

Attendance

Please read the *Attendance Regulations (REG 02.20.03)* found at <https://policies.ncsu.edu/regulation/req-02-20-03>.

- You are required to be in class and on time. Part of your grade comes from your participation during class; therefore you will lose participation points for frequent absences. All students are given one free pass for an unexcused absence. After missing the first. Then each absence, students will lose 1 point per unexcused absence.
- If you have to be absent on the day of a presentation or handing in an assignment you have to provide appropriate documentation for your absence.
- You will not be able to makeup participation activities we conduct during class. Only activities that become take-home assignments can be made up, if you have appropriate documentation for your absence.
- If you discontinue class attendance without following proper procedures for dropping or withdrawing, you will receive a grade of F in the course and your last date of attendance will be documented in your final grade.

Assignments

- You are responsible for obtaining lecture material from the course web site and for readings as listed on the schedule of topics in this syllabus.
- See details on assignments below.

Integrity

- All course work submitted for a grade in both lecture and field part must be your own. University standards of academic integrity forbid either giving or receiving unauthorized help on graded work. Violations of University standards will be prosecuted. You will need to sign the academic integrity statement on each written assignment.

Please read the **Code of Student Conduct** (POL 11.35.01) found at <http://policies.ncsu.edu/policy/pol-11-35-01> and go to the **Office of Student Conduct** at: <http://studentconduct.ncsu.edu/>

- Be a team player and be considerate of others in class by following simple rules of politeness.
- Try not to pack up before class ends. This is disruptive to others. You will be allowed to leave for your next class or meeting in a timely manner.
- Try your best to leave your sitting area clean and tidy by picking up any trash that's yours.
- Turn off completely all electronic devices (iPods, cell phones, laptops) during lecture, unless you are using them to read lecture notes, or take notes.
- Remember that this course is for you—you will get as much out of it as you're willing to put in.

Email Etiquette

Make sure to include your full name in the body of all emails you send to me. In the subject heading, **please write: GGS_Survey**. Please only write GGS_Survey and nothing

else. If you are attaching a document, **include your name in the document and use your name and course number for the file name**. Also include your full name in the attached document. If you're replying to an email, please include any previous exchanges in the email reply. All emails should begin with a salutation and close with your name. If you have not received a reply, make sure you have the correct heading, as the filter will only collect those with GGS_Survey. We will also create a Slack account for the course, for easy access to announcements and contacting other students or instructors.

Statement on Disabilities: If you have a disability that will affect your performance in this course, reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with the Disability Resource Office at Holmes Hall, Suite 304, 2751 Cates Avenue, Campus Box 7509, 919-515-7653. For more information on NC State's policy on working with students with disabilities, please see the **[Academic Accommodations for Students with Disabilities Regulation \(REG02.20.01\)](#)**. Also, please be sure to discuss any issues with the course coordinator.

Non-discrimination Policy: NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation (POL 04.25.05) may be accessed at <http://policies.ncsu.edu/policy/pol-04-25-05> and <http://oied.ncsu.edu/oied/policies.php>. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the **Office for Equal Opportunity (OEO)** at 919-515-9617.