GGS 303-002
Conservation of Resources and Environment
Fall 2016

Instructor: Sharon Spradling, Adjunct Professor
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Office in room 2219 of Exploratory Hall
Office hours Tuesdays 1:15 – 2:15 PM (right after class) and by appointment

Lectures: Tuesdays 10:30 AM – 1:10 PM in room 2310 of Exploratory Hall

Textbook: **OPTIONAL – this textbook is not required but may be helpful:**
Natural Resources Conservation; Management for a Sustainable Future (10th Edition).
Daniel D. Chiras, John P. Reganold
ISBN-13: 978-0132251389 ISBN-10: 0132251388 Edition: 10th
Available at the George Mason University (GMU) Bookstore or on Amazon

Prerequisites: At least 30 total credit hours, completion or concurrent enrollment in all university general education courses or permission of instructor.

Course Description:
This course provides an in-depth look at the distribution, use and conservation of the world's resources. Studies will center on the concept of sustainability, which is defined as meeting the needs of the present human population without compromising the ability of future generations to meet their needs. Four major and interrelated issues threatening sustainability will be examined in detail:

1. A human population experiencing exponential growth
2. Overconsumption and depletion of natural resources
3. Environmental pollution
4. Climate change

As a GMU **Synthesis course**, this course will require students to synthesize the knowledge, skills and values gained from the Mason Core curriculum and expand their ability to master new content, think critically, and develop life-long learning skills across the physical and social sciences. Upon completing this synthesis course, students will achieve learning outcomes enabling them to:

1. Communicate effectively in both oral and written forms, applying appropriate rhetorical standards (e.g., audience adaptation, language, argument, organization, evidence, etc.)
2. Using perspectives from two or more disciplines, connect issues in a given field to wider intellectual, community or societal concerns
3. Apply critical thinking skills to evaluate the quality, credibility and limitations of an argument or a solution using appropriate evidence or resources.

This course is also a GMU **Green Leaf Sustainability-related course**. Completion of this course will provide students with in-depth knowledge of a particular aspect or dimension of sustainability (natural resources) or by providing a focus area (such as renewable energy) for a student's sustainability studies.

Honor Code
Students are expected to follow the George Mason University rules of student conduct as noted in the catalog. Honor code violations such as cheating or plagiarizing will be reported to the Office of Academic Integrity.

GMU Email Accounts & Blackboard
Students must use and regularly check their GMU email accounts and Blackboard to receive information for this class. Please do not send emails to your instructor from non-GMU accounts.

Office of Disability Services
If you require academic accommodations due to a permanent or temporary disability, please contact the Office of Disability Services (ODS) at (703)993-2474, http://ods.gmu.edu. ODS will then contact your instructor to arrange appropriate accommodations.

Communications Policy
Please turn cell phone sounds off and refrain from texting during class. Please turn the desktop computer monitors off when not in use for a class exercise. If you use your own laptop for note taking, please do not conduct other business on your computer during class as this is very distracting for your classmates.
Please treat everyone in the classroom as a fellow team member, and maintain a respectful attitude even when expressing disagreement and providing presentation critiques.

Learning Outcomes:
By the end of this course, students will be able to:

1. Understand the importance, distribution, current use and limits of the world's natural resources
2. Evaluate and analyze the impact of resource exploitation
3. Understand and describe the balance between ecology, technology and the economy
4. Understand the concepts of sustainability and conservation planning
5. Prepare and execute an effective classroom presentation on a natural resources topic
6. Critically review and analyze assigned readings on natural resources and sustainability

Grading Policy:
There will be two in-class examinations (a midterm and a final), one individual presentation on an assigned topic, and homework assignments consisting of short papers based on assigned readings or other exercises.

Activity	% of Final Grade	Points
Assignments/Short papers (10 @ 40 points each)	**40%**	**400**
Individual Presentation	**20%**	**200**
Midterm Exam	**20%**	**200**
Attendance/Classroom Participation	**20%**	**200**
	100%	**Total = 1000**

In the absence of a submission for any of the above activities, the student's grade is a zero. Missed exams and presentations may not be made up except in extreme circumstances.
Homework assignments may be submitted 1 day late (by 4 PM the day after the due date) and will be marked down by 5 points (out of 20).

Attendance and class participation are a critical part of this class, and will account for 20% of your final grade. This will be calculated as follows (for a maximum of 200 points):

- Class participation in discussions: 100 points
- Attendance: 100 points. Students will begin with 100 free points and lose 10 points for each missed class regardless of reason. In case of prolonged illness, please notify instructor.

Course Schedule

Class	Dates	Topics	Due by start of class	Presentations
1st	**Aug 30**	Introduction, Course Overview, Presentation Topic Selections, Natural Resource Conservation & Discussion on Presentations		
2nd	**Sep 6**	World Population	**Assignment #1** (In-class questionnaire and selfie)	
3rd	**Sep 13**	World Food and Agriculture	**Assignment #2** (Population data lab)	• Game changer: Norman Borloug • Microgreens in London bomb shelters
4th	**Sep 20**	Economics & Sustainability	**Assignment #3** (Organizations feeding the world)	• Game changer: Thomas Malthus
5th	**Sep 27**	Ecology & Biodiversity	**Assignment #4** (Reading and paper on E&T species)	• Holocene extinction • Seed banks • Glacier loss effect on ecosystems
6th	**Oct 4**	Water Resources **Assignment #5 (In-class quiz)** Review for Midterm Exam	**Assignment #5 (In-class quiz)**	• NASA's megadrought • Ogallala Aquifer • Desalinization plants
	Oct 11	**NO CLASS** – Monday classes meet on Tuesday of this week		
7th	**Oct 18**	**Midterm Exam**		
8th	**Oct 25**	Soil/Rangeland/Fisheries Conservation	**Assignment #6** (Discuss your sustainable fish)	• Alberta Fire Ft McMurray • American dustbowl
9th	**Nov 1**	Mining	**Assignment #7** (Discuss your assigned mineral)	• 2010 Dodd-Frank Act on Conflict Minerals
10th	**Nov 8**	Energy from Fossil Fuels		• What is OPEC?
11th	**Nov 15**	Nuclear Energy	**Assignment #8** (Petroleum products used)	• Three Mile Island disaster (1979) • Chernobyl disaster (1986) • Fukushima disaster (2011)
12th	**Nov 22**	Alternative Energy Sources	**Assignment #9** (State energy profiles)	• Game changer: Elon Musk • Ivanpah Solar Electric Generating System
13th	**Nov 29**	Atmosphere/Climate Change	**Assignment #10** (Timeline)	• What is the IPCC? • Antarctic ice sheets
14th	**Dec 6**	Class Discussion and Catch-up		
	Dec 13	NO FINAL EXAM		

This syllabus is subject to change during the semester as conditions dictate.