GEORGE MASON UNIVERSITY

Contact Details for Your Instructor			Course Details	
Name	:	Maction Komwa, PhD	Class Meeting Times	R| 4:30 pm – 7:10 pm
Office	:	Exploratory Hall, Room 2414	Location	Horizon 4012
Email	:	mkomwa@gmu.edu	Credit hours	3.00
Phone	:	703-993-5646	Office Hours	W: 10:30 am -11:30 am | R 1:30 pm – 2:30 pm or by Appointment

Graduate Teaching Assistant
Name : Casey Yuan
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Course Description

Sustainability lies at the intersection of the environment, society, and economics. This course explores the concepts of sustainable development at different geographical scales (local, national, and international). We examine the applications, indicators, measurement tools of sustainable development for analysis and decision making in support of environmentally sustainable development from a geographic perspective. Case studies and problem-solving exercises will be used to stimulate learning and provide practical experience in addressing sustainable development issues.

Required Textbook:

Exploring Sustainable Development: Geographical Perspectives. *Edited by Martin Purvis and Alan Grainger.*

Learning Outcomes

Upon completing this course, students will be able to:

- Identify and analyze the interconnected social, environmental, and economic dimensions of sustainability.
- Integrate social and environmental data to understand the spatial patterns and impacts of sustainability issues.
- Critically analyze various approaches to sustainable development, including the UN Sustainable Development Goals, and assess their effectiveness in addressing global challenges.
- Communicate effectively on sustainable development issues by articulating their understanding of sustainable development concepts and apply their knowledge to real-world problems through written and oral presentations.

Class Format

This class meets in person on Thursdays from 4:30 pm – 7:10 pm in the Horizon Hall 4012. Lectures will follow the course syllabus, and while I'll post my notes on Canvas, you are encouraged to take your own notes.

Your participation is highly valued, as this is an interactive class. We'll be conducting spatial analysis for sustainable development using geospatial tools for lab assignments. This means you will need a computer with sufficient memory and storage. If your computer can't handle the workload, you have two options: use the GIS Lab in the Exploratory Hall 2012 or access ArcGIS software through a virtual environment. You can find more details in the "Course Resources" section on Canvas.

Assignments and Evaluation

Your final grade will be determined by the following components: Each assignment category will be assigned a specific weight in the calculation of your final. See percentage allocated to each assignment category.

Students are expected to submit high quality assignments during this course via the Canvas. All assignments are to be completed according the dates outlined in the syllabus.

Course Assignment Requirements Description	Allocated Percentage
Discussion Forum | Simulation Activities | Class debate	5%
Reading Reflection Summaries	5%
GIS for Sustainable Development Labs [Experiential Learning Activities *(ELA)[*	18%
Exam 1	15%
Exam 2	20%
Final Research Paper [Individual] • *Topic description/Proposal (No grade), Annotated Bibliography (1%), Draft (2%), Peer-Review 2%; Research Paper (20%)*	25%
Final Presentation	10%
Discussion Leader	2%

Grading Scale
Students will receive grades according to the scale detailed below:

Range	Letter Grade	Grade description	Range	Letter Grade	Grade description
>=93	A	Excellent	77 - 79.9	C+	Above satisfactory
90 – 92.9	A-	Very Good	70 - 76.9	C	Satisfactory
87 - 89.9	B+	Good with merit	60 - 69.9	D	Just OK
83 - 86.9	B	Good	<60	F	Fail
80 - 82.9	B-	Above satisfactory			

Description of Assignments

Final Research Paper

This paper is your chance to deeply explore a sustainability topic and apply what you've learned. By doing in-depth research or a case study that links class concepts to real-world issues, you'll strengthen your understanding of sustainable development.

Your paper must explicitly address all three pillars of sustainable development: economic, environmental, and social.

While not required, it is highly encouraged that you integrate geospatial techniques into your research. This will allow you to demonstrate a deeper understanding of both the concepts and the practical application of these techniques in sustainable development.

Full details, including a list of suggested topics, will be posted on Canvas.

Final Presentation

Towards the end of the semester, you'll have the opportunity to present your research findings to your classmates in a 15-minute presentation. We'll discuss specifics like the presentation schedule and sign-up process in class.

Active Learning Through Online and Class Discussion/Activity

This course fosters active learning through engaging class discussions and online interactions.
- **Online Discussions:** You will participate in online discussions on Canvas, responding to thought-provoking questions about course materials. Specific instructions, prompts, and guidelines will be provided for each discussion.
- **In-Class Discussions/Activities:** Your active participation in-class activities, such as simulations and

debates, will be assessed as part of your grade. No grade will be given for missing in-class activity.

- o Some **in-class activities** will not be listed on the syllabus. The instructor will determine which of these count toward your class participation grade. Your attendance is expected and highly valued.

Exams

As part of your course evaluation, you will demonstrate your understanding of the course material by taking two exams (Exam 1 and Exam 2 – No final exams since you will submit a final research paper). These exams will be primarily objective, featuring questions that assess your ability to analyze, apply, and synthesize concepts covered in lectures, videos, homework assignments, and reading materials. Expect a variety of question formats, including multiple choice, matching, fill-in-the-blank, and short answer questions.

Reading Reflection, Class Activities, and Participation

Students are required to complete all assigned weekly readings and be familiar with their content. Discussion questions and prompts for the reading reflections will be posted on Canvas to guide your reading and facilitate class discussions and activities. Be prepared to discuss these questions in class and submit an individual reflection before each class meeting, as per the due dates listed on the syllabus.

GIS Lab Assignments

- Many of the sustainability issues we'll discuss in this course can be analyzed and mapped within a geographic context. This provides an integrative framework for policymakers to make informed decisions about sustainable development at local, national, and global levels.
- As outlined in the learning outcomes, organizing sustainability-related knowledge, data, and information into a coherent framework is essential for effective decision-making and sustainable development.
- Through GIS lab assignments, you will develop specialized skills aimed at mapping a better future for people, prosperity, and the planet.
- GIS lab instructions will be posted in the Assignments folder. We will also have hands-on activities in class.

Late/Make-up Assignments

Policy Due Dates & Flex Days

All assignment due dates are listed in the syllabus and on Canvas. You get two flex days to use throughout the semester. You can use these to submit an assignment up to 48 hours late without a penalty, for any reason. These flex days do not apply to online class discussions.

Late Penalties:

- After using your flex days, late assignments will be penalized:
  - o Assignments submitted up to one week late will receive a 10% grade reduction.
  - o Assignments submitted one to two weeks late will receive a 25% grade reduction.
  - o Assignments submitted more than two weeks late will receive 0 points.
- A time extension for exceptional circumstances must be approved in advance.

Course Communication

Announcements will be posted in Canvas on a regular basis. They will appear on your Canvas Home Page Announcement or they will be sent to you directly to your GMU Account. Please make certain to check them regularly, as they will contain any important information about upcoming projects or class concerns. I will not be able to reply to your emails instantly, however, I should be able to respond within 24-48 hours. Sending messages over the weekend might take a bit longer for you to get a reply.

Additionally, please use your college email for any personal or private messages, such as those about grades or absences.

For general questions about assignments or to share something interesting with the class, use the "Ask your Instructor/Question Forum" on Canvas. This helps the entire class benefit from the conversation, and other students might be able to help out, too.

Tentative Course Schedule - *Faculty reserves the right to alter the schedule as necessary, with notification to students.*

Week | In-class Meeting		Topic description	Readings	Assignment short description and due date
1	8/28	Course Overview An Introduction to Sustainability	Syllabus Chapter 1	**Online Discussion - Self-introduction**

2	9/4	What is Sustainable development?
		
		   ○ **Economic Growth and Progress:** How economic development contributes to sustainability.
		   ○ **Pillars of Sustainability:** The three main parts of sustainability: economy, environment, and society.
		   ○ Sustainable Development Timeline: A history of sustainable development ideas.
		   ○ **MDGs to SDGs:** The shift from the Millennium Development Goals to the Sustainable Development Goals and the goal of a sustainable world by 2030.
			Chapter 1
			
			Mapping the Sustainable Development Goals Relationships [Check Article on Canvas]
			
			GIS Hands-on – Intro to ArcGIS Pro
				Class Activity/Discussion

3	9/11	Sustainable Development and Geospatial Information
		Geospatial Information and Its Applications
		   ○ What is geospatial information?
		   ○ Applications of geospatial information in sustainable development
		   ○ Remote sensing
		   ○ Geographic Information Systems (GIS)
		   ○ Global Positioning Systems (GPS)
			Chapter 3
			
			GIS Hands-on – Poverty Mapping
				GIS Lab #1 — [Introduction to ArcGIS Pro] Submit a tentative research topic – due 9/14
				
				Discussion Leader(s) – Check the Roster on Canvas
				
				Reading Reflection #1 due before class meeting – 9/11

4	9/18	Economic Development: Determinants and Measures
		   ○ **Tools and Systems:** Exploring methods and frameworks for measuring sustainability and how they differ across the globe.
		   ○ New Measures of Wellbeing and Development/alternative measures of economic progress e.g. Happiness Indicators
		   ○ Social Inclusion
		   ○ **Geography and Sustainable Development:** Examining the relationship between geography and sustainable development.
			Chapters 2
			Check additional reading materials on Canvas
				Discussion Leader(s) – Check the Roster on Canvas
				
				Reading Reflection #2 – due before class meeting – 9/18
				
				Research Topic Proposal

Week | In-class Meeting		Topic description	Assigned Readings	Assignment short description and due date
5	9/25	**Mid Term Exam**	*No Assigned Reading*	**Mid Term Exam**
6	10/2	Unit 6.1: Life Cycle Assessment Unit 1.1: Introduction to Life Cycle Assessment (LCA) • Stages of LCA • Importance of LCA Unit 6.2: Circular Economy Principles Key Principles of Circular Economy	*Check Additional Articles and Videos through the Canvas* **Case Studies** • **Case Study 1:** LCA of a product in a circular economy context • **Case Study 2:** A successful circular economy initiative integrated with LCA	*Discussion Leader(s) – Check the Roster on Canvas* Reading Reflection #3 – due before class meeting -10/2 **Submit your Annotated Bibliography**
7	10/9	Sustainable Agriculture, Nutrition & Food Security o **Modern Agriculture**: Examining contemporary agricultural practices. o **Sustainable Farming Systems:** Different Places, Different Solutions: Exploring diverse approaches to sustainable farming adapted to various regions. o **How Food Systems Threaten the Environment:** Investigating the environmental impacts of current food production systems.	Chapter 8 *Check Additional Articles and Videos through the Canvas* *Guest Speaker on Crop Monitoring use Geospatial Technologies*	*GIS Lab - Poverty Mapping (Indicators) – Form a group and pick a suggested topic from the instructor – 10/12* Reading Reflection #4 – due before class meeting -10/9
8	10/16	Environmental Sustainability • Conservation & Biodiversity o Millennium Ecosystem Assessment • Selected Case Studies – Amazon, Community Management & Ecotourism, etc.	Communities and Conservation," Case study of Posada Amazonas Ecolodge. GIS Hands-on – Food Desert & Food Security	*Discussion Leader(s) – Check the Roster on Canvas* Reading Reflection #5 – due before class meeting -10/16
9	10/23	**Exam 2**	*No Assigned Reading*	*Exam 2 – 10/23*
10	10/30	**Urban Sprawl and Sustainable Cities** o Making Cities More Sustainable: o Strategies for creating sustainable cities, including people-centered planning and community involvement. o What Makes a City Sustainable? o Key factors that contribute to a city's sustainability. o Case Studies on Sustainable Cities: Curitiba (Brazil) and Amsterdam (Netherlands), with a focus on sustainable transportation.	Chapters 6 *Check Additional Articles and Videos through the Canvas*	Reading Reflection #6 – due before class meeting -10/30 *Discussion Leader(s) – Check the Roster on Canvas* *GIS Lab – Mapping Food Security – due 10/26*

Week | In-class Meeting		Topic description	Assigned Readings	Assignment short description and due date
11	11/6	**Climate Change, Energy, and Sustainability** o Understanding how climate change works. o How climate change harms sustainability. o Knowing how much Earth can take (Planet Limits & Planetary Boundaries) o Using renewable energy for a healthier planet. o How energy affects our health and the environment.	Chapter 11 GIS Hands-on Activity on SDGs (Climate Change Indicators)	<mark>*Discussion Leader(s) – Check the Roster on Canvas*</mark> Reading Reflection #7 – due before class meeting -11/6 **Submit your Draft**
12	11/13	*Climate Change Simulation Activity - ELA*	*Guest Speaker on Climate Change*	<mark>*Discussion Leader(s) – Check the Roster on Canvas*</mark> *GIS Lab – Mapping Food Security – due 10/26* Peer-Review – due 11/16
13	11/20	**Final Presentation -1**		Submit your PowerPoint Presentation [No Google ppt]
14	11/27	**Thanksgiving – No Classes**		Nothing is due – Enjoy your Thanksgiving
15	12/4	**Final Presentation -2**		Submit your PowerPoint Presentation [No Google ppt]
16	12/13	**Final Paper due 12/13**		

Faculty reserves the right to alter the schedule as necessary, with notification to students.

Note: While online discussions aren't on the syllabus schedule, I'll occasionally post a prompt on Canvas. You'll be asked to share your initial thoughts on the topic and respond to at least two of your classmates.

Updated August 2025
These four policies affect students in all courses at George Mason University. This Course Policy Addendum must be made available to students in all courses (see Catalog Policy AP.2.5) or click the link: GMU Common Course Policies - Stearns Center for Teaching and Learning

Academic Standards:
Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.
- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is outlined in the university's procedures. Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.
The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Accommodations for Students with Disabilities
Disability Services at George Mason University is committed to providing equitable access to learning opportunities for all students by upholding the laws that ensure equal treatment of people with disabilities. If you are seeking accommodations, please visit https://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

FERPA and Use of GMU Email Addresses for Course Communication
The Family Educational Rights and Privacy Act (FERPA) governs the disclosure of education records for eligible students and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Title IX Resources and Required Reporting

As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If

outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence. Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone *confidentially*, please contact one of Mason's confidential employees in Student Support and Advocacy (SSAC), Counseling and Psychological Services (CAPS), Student Health Services (SHS), and/or
the Office of the University

Additional Policies
Digital Interventions – AI
Generative AI tools, such as large language models, are powerful tools that can support your learning by helping with tasks like brainstorming and generating ideas. However, they can also interfere with the learning process. This means you must explicitly disclose when and how you've used AI in your work, including the specific platform and date of use. Treat AI-generated material like any other source—it must be properly cited, and you are not permitted to submit it as your own original work. Failure to follow this policy is a serious academic integrity violation and will be punished accordingly. Additionally, George Mason University's Academic Standards Policy prohibits students from cheating, plagiarism, stealing, and lying in academic work.

Diversity
Diversity is an important in an academic environment, and is a priority for George Mason
University. See: http://ctfe.gmu.edu/professional-development/mason-diversity-statement/
> *"George Mason University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth. An emphasis upon diversity and inclusion throughout the campus community is essential to achieve these goals.*
> *Diversity is broadly defined to include such characteristics as, but not limited to, race, ethnicity, gender, religion, age, disability, and sexual orientation. Diversity also entails different viewpoints, philosophies, and perspectives. Attention to these aspects of diversity will help promote a culture of inclusion and belonging, and an environment where diverse opinions, backgrounds and practices have the opportunity to be voiced, heard and respected."*

Absences & Accommodations
- **Religious Holidays:** Please refer to George Mason University's calendar of religious holidays and observations (http://ulife.gmu.edu/calendar/religious -holiday-calendar/). It is the student's responsibility to speak to the instructor in advance should their religious observances impact their participation in class activities and assignments.
- **Absence for documented illness:** Students who miss multiple virtual classes due to prolonged illness should seek medical care and provide documentation of such to the Dean's Office, which will communicate with the student's professor(s). A prolonged absence may necessitate the student's withdrawal from the course or from the University for the semester.
- At **the discretion of the professor:** There may be cases where an absence is undocumented but is, nevertheless, excused by the professor (e.g., absence due to a death in the family). Students should initiate a conversation with their professors about the nature and duration of the absence, in advance of the absence whenever possible.

When absences are excused, students remain responsible for all assigned work, and shall be provided with the opportunity to make up, without penalty, any work that they have missed.

University Resources
George Mason University has several academic support and other resources to facilitate your success. Some of these resources are presented below:
i. University Libraries: see http://library.gmu.edu/for/online.
ii. Counseling and Psychological Services: http://caps.gmu.edu/
iii. The Writing Center [http://writingcenter.gmu.edu/
iv. University Policies: http://universitypolicy.gmu.edu
v. University Catalog: http://catalog.gmu.edu/
vi. Learning Services, University Career Services: http://careers.gmu.edu/