



Department of Geography & Geoinformation Science

GGIS 399 - 002 – Geography of Food Systems & Environment
Spring 2026

Contact Details for Your Instructor

Name : Maction Komwa, PhD
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Course Details

Class Meeting Times : T | 4:30 pm – 7:10 pm
Location : Exploratory 2312
Credit hours : 3.00
Office Hours : T 1:30 pm – 2:30 pm | W: 10:30 am -11:30 am |
or by Appointment

Graduate Teaching Assistant

Name: Ethan Hopson

Email: ehopson2@gmu.edu

Office: Exploratory Hall - TBA

Office Hours: TBA

Course Description

This interdisciplinary course offers a spatial exploration of the global food system, examining the complex relationship between human nutrition and environmental sustainability. By tracing food from production to consumption, students will analyze how global demand and climate change drive social, economic, and ecological shifts across different landscapes. Through a geographic lens, the class investigates critical issues like food deserts and sustainable agricultural transformation, while providing hands-on experience with GIS and remote sensing to map and advocate for a more resilient future of food.

Required Textbook:

Future Food Systems: Exploring Global Production, Processing, Distribution and Consumption (1st Edition, 2024)
Edited by Rickey Y. Yada, Rene Van Acker, Martin Scanlon, and David Gray.

Learning Outcomes

Upon completing this course, students will be able to:

- Evaluate how historical trends, global demand, and climate change reshape the relationship between humans and the natural environment.
- Synthesize interdisciplinary data—including land-use trends, labor economics, and social demographics—to evaluate the structural drivers behind unequal food access and regional food insecurity.
- Analyze the spatial distribution of food production, processing, and consumption at local and global scales to determine how geographic organization influences resource depletion, carbon emissions, and community food security.
- Analyze the multi-dimensional impacts of food systems on public health, social equity, and environmental integrity from diverse stakeholder perspectives to propose evidence-based interventions for systemic improvement.
- Synthesize geospatial data using GIS and remote sensing software to model vulnerabilities within the food supply chain and produce professional-grade maps for policy advocacy.

Class Format

This class meets in person on Tuesdays from 4:30 pm – 7:10 pm in the Exploratory Hall 2312. Lectures will follow the course syllabus, and while I'll post my notes on Canvas, you are encouraged to take your own notes.

Assignments and Evaluation

Your performance and grade will be determined by the following components:

Course Assignment Requirements Description	Allocated Percentage
Asynchronous discussions & synchronous discussions Simulation Activity	5%
Research review	5%
GIS for Food Systems Transformation	15%
Quizzes	5%
Exam 1	15%
Exam 2	20%
Final Project	25%
Final Presentation	10%

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

1. Class Discussions | Simulation Activities– 5%

The goal of our weekly discussions is to bridge course materials with real-world experiences, building a shared understanding of the food system's complexities. These will occur in two formats:

- **Asynchronous (Online):** Conducted via the Canvas Discussion Forum.
- **Synchronous (In-Person):** Held during class time, guided either by the instructor or a designated student discussion leader.

Deadlines & Leadership

Please refer to the course schedule at the end of the syllabus to see which weeks are designated for online versus in-class sessions.

- **Instructor-Led Weeks:** Discussion questions will be posted by the **Friday** before the discussion week.
- **Student-Led Weeks:** If you are the assigned discussion leader, you must post your discussion questions by the **Monday** prior to our class meeting.

2. Research Review – 5%

Select a focused topic of personal interest within the field of sustainable food system transformation—such as Circular Food Economies, school gardens, or Regenerative Agriculture—and analyze it through the lens of current research. In a 1–2-page paper, you will articulate your perspective by synthesizing findings from six reliable, peer-reviewed sources or government reports published within the last five years. Your review should go beyond a simple summary, integrating scholarly evidence to support your view on how these specific concepts contribute to a more resilient and sustainable food future.

3. GIS for Food Systems Transformation – 15%

In this hands-on assignment, you will gain proficiency in ArcGIS Pro to analyze and solve critical challenges within the food system and the environment. Through guided projects, you will apply spatial analysis to real-world scenarios, such as mapping food security and justice via Interactive Food Asset Mapping or optimizing land use through Precision Agriculture. By the end of the module, you will be equipped to use geospatial data to visualize vulnerabilities, identify opportunities for transformation, and advocate for data-driven solutions in global and local food landscapes.

4. Final Project - 25%

For the final project, you will demonstrate your comprehensive understanding of food systems by analyzing a specific topic or case study related to sustainable transformation. Drawing from course themes and the textbook, you will explore a subject of personal interest—such as Community Supported Agriculture (CSA) initiatives, urban food innovations, or the role of AI in food security, or how people already engaged in addressing food issues

This final project is scaffolded, meaning you will develop your work incrementally through a topic proposal, preliminary drafts, and a peer-review process. To ensure your project is properly focused, you will first submit a brief proposal for instructor approval. Finally, you will have the opportunity to present your findings to the class toward the end of the semester; full details and guidelines will be available on Canvas.

5. Quizzes – 5%

You will complete three online quizzes covering selected chapters to reinforce your understanding of core concepts. These assignments are designed to strengthen your comprehension of the course material and serve as a primary study tool to help you prepare for exams.

6. Exams – 35%

Two exams will be administered to assess your mastery of the course material. To support your success, a comprehensive review session will be conducted prior to each exam.

Late/Make-up Assignments

Dates & Flex Days

- To ensure transparency and help you manage your schedule, all assignment due dates are clearly listed in the syllabus and on Canvas. To provide flexibility, you are granted two "**flex days**" per semester, which allow you to submit an assignment up to 48 hours late without penalty—no questions asked. Please note that while these days can be used for most coursework, they do not apply to in-class discussions/activities.

Late Policy

- I strongly encourage all students to submit their assignments on time to stay on track. However, if circumstances beyond your control prevent a timely submission, you may still submit your work for partial credit. A deduction of 5 points per day will be applied to all late submissions. If you have a valid, documented reason for a delay (such as an illness, emergency, sports schedule, etc.), please communicate with the Instructor, TA, or LA as soon as possible to discuss your situation.

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 Date		Topic description	Assigned Reading	Assignment due date
1	1/20	Course Overview	Syllabus	Self-Intro Team Building
		Define key concepts & food systems	None	
2	1/27	Part I: Food Systems & System Thinking	Check assigned articles on Canvas	Discussion Forum
3	2/03	Land-Based Production	Textbook: Part I [Section 1 – 4]	Asynchronous discussions & In-class discussions
4	2/10	Precision Crop Production & GIS <u>Exam Review</u>	Textbook: Part I [Section 6 - 8] – GIS Hands-on Activity	Asynchronous discussions & In-class discussions Quiz 1 – due 2/15
5	2/17	GIS hands-on Recap Exam 1		Exam 1 – 2/17
6	2/24	Drivers of Food System Food Systems and Planetary Health	Check assigned articles on Canvas	GIS Assignment #1 due 3/1 Research Proposal - 2/27
7	3/03	Part II: Aquaculture Production	Textbook: Part II [Section 10, 12, 13]	Asynchronous discussions Simulation Activity Research Review Quiz 2 – due 3/10
8	3/10	Spring Recess	None	No Classes
9	3/17	GIS/Remote Sensing & Crop Health	GIS Hands-on Activity	Asynchronous discussions Guest Speaker
10	3/24	Part III: Indigenous Food Systems GIS Recap	Textbook: Part III [Section 14 - 15]	Asynchronous discussions & In-class discussions
11	3/31	Part IV: Consumer, Supply, and Distribution (Supply Chain) <u>Exam Review</u>	Check assigned articles on Canvas	GIS Assignment #2 due 3/22
12	4/07	Agri-Food Policy	Textbook: Part IV [Section 18] Articles on Canvas]	Exam 2 – 4/7
13	4/14	Food Systems and Nutrition	GIS Hands-on Activity Textbook: Part IV [Section 18 - 19]	Draft – 4/12 Guest Speaker
14	4/21	Pathways to Food Systems Transformation	Check assigned articles on Canvas	Quiz 3 -due 4/24 GIS Assignment #3 due 4/26
	4/28	Final Presentation	None	Final Presentation – 4/28
16	5/05	Reading Day – No Classes	None	Peer Review due 5/3 Final Research Paper - 5/10

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/>