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**Course:** GGS 102 (Online)

**Website:** <https://mymason.gmu.edu>

**Section/Credits:** C01 / 3 credit hours

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**Office hours:** By appointment

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## General Information

**Catalog description:** Interrelated processes affecting global distribution and character of climate, soils, vegetation, hydrology, and landforms. Includes elements of mapping.

**Course overview:** Physical geography is the spatial study of the natural materials and processes that interact on Earth. In physical geography, Earth is studied from a systems perspective, which emphasizes the interactions between the atmosphere, hydrosphere, lithosphere, and biosphere; in other words, understanding how air, water, land surface, and living systems have interplaying materials and processes. In this course, students will become familiar with climate, weather, landforms, water processes, and ecosystems through an examination of their spatial distributions and patterns.

**Online course:** GGS 102 is presented as an asynchronous online course. “Asynchronous” means that there are no specific timed gatherings for this course (E.G.: we don’t meet for lectures at specific times like in-classroom courses). Still, there will be specific due dates for graded work in the course that you are expected to meet. It is incumbent upon each student to organize their time and work through materials in a timely and efficient manner. As a five-week summer course, each course week is approximately three weeks during a full Fall/Spring semester. Be sure you can devote the necessary time to the course.

The course has been designed in weekly segments (see the schedule at the end of the syllabus). Segments will be released in order in a prescribed manner. Students will not have access to the entirety of the course materials from the start; you will get the materials necessary for each week as the week approaches. This is done to ease logistical problems of students being at significantly different sections of the course. Please do not ask for advanced access to materials.

**Natural science (non-lab) core:** GGS 102 is designated as a Mason Core course. Specifically, GGS 102 fulfills the Natural Science (non-lab) designation under the Exploration requirements. As described in the Mason Catalog, “natural science courses engage students in scientific exploration; foster their curiosity; enhance their enthusiasm for science; and enable them to apply scientific knowledge and reasoning to personal, professional and public decision-making.” As a non-lab course, the following learning outcomes are applicable:

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
  - a. Evolves based on new evidence, and
  - b. Differs from personal and cultural beliefs.
2. Recognize the scope and limits of science.

3. Recognize and articulate the relationship between the natural sciences and society and the application of science to societal challenges (e.g., health, conservation, sustainability, energy, natural disasters, etc.).
4. Evaluate scientific information (e.g., distinguish primary and secondary sources, assess credibility and validity of information).

**Target audience:** This course is intended for students interested in learning more about the natural world from a geographic or spatial perspective. As a survey course covering many aspects of the natural world, students will be exposed to broad aspect. This course can serve as a gateway towards additional physical geography courses that provide more depth of subject, or a Bachelor's degree in geography. GEOG majors, non-GEOG majors, and undeclared majors are all welcome to take this course.

**Prerequisites:** No prior coursework is required, but basic computer skills are a must.

**Enrollment and repeat policy:** This course follows the general Mason policy that an undergraduate course can be repeated for grade up to three times. Understand that each academic unit can have more restrictive limits on specific courses. Students that repeat the course must submit all newly completed work.

## Course Materials

**Required text:** Christopherson, R. W., S. Cunha, C. E. Thomsen, and G. Birkeland. 2017. *Geosystems core*. 1st ed. Pearson.  
ISBN 13: 978-0-321-83474-4

The course text book is available from various outlets in various forms. It is available through the bookstore or through your online provider of choice (Amazon, the publisher, etc). The publisher sells an eBook version through VitalSource (<https://www.vitalsource.com/products/geosystems-core-robert-w-christopherson-v9780134142869>) and through the publisher website (<http://www.mypearsonstore.com/bookstore/geosystems-core-9780321834744?xid=PSED>). The publisher site offers multiple packages, but you are not required to purchase access to their web resources called "Mastering Geography". The e-book version is the same as the hard copy, but there are short-term purchase options that are less expensive. In addition, there may be other readings posted on Blackboard for you to complete.

**Required equipment:** As an online course, you will need to have dependable internet access to successfully complete this course. A computer of some kind (desktop, laptop, tablet) will be necessary to view course materials and to complete quizzes and assignments. The ability to view and listen to online lecture videos and other materials is necessary; this means you will need speakers or headphones with your device. There should be no issues as to the use of different operating systems; the course should work just the same using a Windows or Mac machine, for example. If an issue comes up, please let your professor know.

**GGG computer lab:** The lab in EXPL 2102 is open 24 hours for you to use. Registration in a GGS class should automatically grant you access. Please contact [ggsit@gmu.edu](mailto:ggsit@gmu.edu) to report issues. You can also make use of the GMU Virtual Computing Lab (<https://www.vcl.gmu.edu/>).

**Online materials and email:** This course will make extensive use of Blackboard at Mason. Course materials such as assignments will be available only in electronic version on Blackboard. Also, students will be expected to submit assignments online through Blackboard. **Only Word document (.docx or .doc) or Adobe PDF (.pdf) file formats will be accepted**, with some exceptions. Grades will be posted on Blackboard as well. Make sure you are familiar and comfortable with the Blackboard interface.

Students are required to have a MasonLive/Email account, which will allow you access to Blackboard and lab computers. Please use this university email account when contacting the professor regarding this class.

## Grading

**Quizzes (60% total):** There will be five quizzes in this course. Consider these as similar to noncumulative midterm examinations you may have in other courses. Quizzes will generally be composed of multiple choice questions, with potentially some other options sometimes mixed in such as fill-in-the-blank and short answer. Quizzes will cover topics from that week and will pull information from any course materials (readings, recordings, other videos, and exercises). Each quiz will be weighted equally (12% of the overall grade each).

**Exercises (20%):** There will be five exercises in this course. Exercises are assignments that allow students to dive deeper into subjects covered in the week's readings and recordings. The work completed in exercises will be varied and may include writing, calculations, answering short questions, and other practices

**Discussions (20%):** There will be five group discussions in this course. Discussions will take place online on our Blackboard page. A group will be based upon a country, and all discussions will be about that country. Students will choose their country during the first week of class, and stay within that group for the entirety of the term. Each week a discussion topic will be posted, and each student will be required to make a post. After posts have been made, students will then make short comments to each of their groupmates' posts.

### Grading Scale:

<i>Grades</i>	<i>Percentage Required</i>	<i>Grades</i>	<i>Percentage Required</i>	<i>Assignment</i>	<i>Percentage of Total Grade</i>
<b>A+</b>	96 to 100	<b>C+</b>	76 to 79.9	Quizzes (5)	<b>60%</b>
<b>A</b>	93 to 95.9	<b>C</b>	73 to 75.9	Exercises (5)	<b>20%</b>
<b>A-</b>	90 to 92.9	<b>C-</b>	70 to 72.9	Discussions (5)	<b>20%</b>
<b>B+</b>	86 to 89.9	<b>D</b>	60 to 69.9		
<b>B</b>	83 to 85.9	<b>F</b>	<60		
<b>B-</b>	80 to 82.9				

**Make-up quizzes and late assignment policies:** Due dates are explicitly stated. Assignments in this course (which are listed above as "exercises" and "discussions") are noted as having specific due dates in the course calendar. **Assignments that are not turned in by the due date will result in a 50% deduction for the assignment.** This penalty begins 1 minute after the due date! Assignments

will be accepted up to the final day of the term (July 27th). Technical excuses ("computer system error", "didn't submit correctly on Blackboard", etc.) will not be accepted as reasons for late work. You are expected to start the work early. **Never underestimate the time you will spend on the assignments.**

If you are ill or physically indisposed and cannot submit your assignment on time, you must notify the instructor before class for you to have a chance to make up the assignment. **Make-up quizzes will be given only for University approved excused absences.** If you know you will be indisposed on a due date for religious observances or participation in University activities, you should ensure you complete the assignment or quiz early. This policy may seem strict, but it is in your best interest to turn in everything on time to avoid falling irrecoverably behind. Please contact the instructor if you are struggling and you will receive aid as best as the instructor can provide. Also, if you cannot complete the assignment on time, it is better to turn in partially completed work than nothing at all.

## Administrative

**Academic integrity:** *The following statement is adapted from the Stearns Center for Teaching and Learning.* No grade is important enough to justify academic misconduct. The integrity of the University community is affected by the individual choices made by each of us. Mason has an Honor Code, which you can read fully at the Office for Academic Integrity (<https://oai.gmu.edu/mason-honor-code/>). The Honor Code Pledge reads as follows:

To promote a stronger sense of mutual responsibility, respect, trust, and fairness among all members of the George Mason University Community and with the desire for greater academic and personal achievement, we, the student members of the university community, have set for this Honor Code: Student Members of the George Mason University community pledge not to cheat, plagiarize, steal, or lie in matters related to academic work.

The Mason Honor Code defines cheating, plagiarism, stealing, and lying. It is expected that you understand these definitions. If you have any doubts about what constitutes cheating, plagiarism, stealing, or lying in the academic context, please see your professor. **Acts of academic dishonesty in this course may be penalized with failure of either the work in question or the entire course.**

While collaboration and group learning is encouraged in this course, each student **absolutely must** turn in their own work, from their own computer, and any discussion must be theirs alone, and not attributable to another person or group, *except where noted* (for example, quoting authors as a small portion of your scholarly work). This also applies to online sources; you cannot copy the words of anyone else for any graded part of this course. It is not enough to exchange a few synonyms within a sentence! You must write, summarize, and analyze with your own words and ideas.

**Disability statement:** This course is in compliance with Mason policies for students with disabilities. Students with disabilities are encouraged to register with Disability Services (DS). DS can be contacted by phone at (703) 993-2474, or in person at SUB I Suite 2500, or online by the link at the end of this section. Students who suspect that they have a disability, temporary or permanent, but do not have documentation are encouraged to contact DS for advice on how to obtain

appropriate evaluation. A memo from DS authorizing your accommodation is needed before any accommodation can be made. The memo should be furnished to the professor preferably within the first two weeks of class or as soon as an accommodation is made. Please visit <https://ds.gmu.edu/> for more information.

**Mason diversity statement:** *From <https://stearnscenter.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.

**Mason policy on sexual harassment, sexual misconduct, and interpersonal violence:** As a faculty member and designated “Responsible Employee,” I am required to report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s [Title IX Coordinator](#) per [university policy 1412](#). If you wish to speak with someone confidentially, please contact the [Student Support and Advocacy Center](#) (703-380-1434), [Counseling and Psychological Services](#) (703-993-2380), [Student Health Services](#), or [Mason’s Title IX Coordinator](#) (703-993-8730; [cde@gmu.edu](mailto:cde@gmu.edu)).

**University-wide closures and class cancellations/delays:** There may be times during the semester in which George Mason University announces university-wide closures or delays. As an asynchronous online course, in general these cancellations should not delay our course. However, there may be times in which university-wide closures or delays will affect Blackboard availability or the ability to submit coursework. In these situations, your professor will make an announcement via Blackboard and/or email. Check the Mason website and our own Blackboard site for updates. Other cancellations or delays to class will be announced via Blackboard by your professor. In the event that this course is in some way interrupted, the course schedule, assignment deadlines, and other course alterations will be decided upon and announced via Blackboard and email by the professor. You are expected to stay abreast of any changes.

**Instructor availability:** Please do not hesitate to contact your instructor if you have questions about course topics or assignments. Your instructor will do his best to answer all weekday emails within 24 hours, and weekend emails within 48 hours. Should you not receive a response within that time frame, you may send a gentle reminder via email. Do try to avoid last-minute emails, as your instructor may not have email accessible immediately before deadlines. It is generally a good practice to avoid sending an email at the first sign of trouble with an assignment; many times you will find the proper solution by giving yourself an hour or two to problem solve!

## GGG 102 Course Schedule

Unit	Lecture Topics	Coursework
<b>Week 1: Monday 6-24 through Saturday 6-29</b>		
0	Intro to physical geography 0.1. Course logistics 0.2. Physical geography and Earth systems 0.3. Locations on Earth 0.4. Maps and cartography 0.5. Modern geoscience tools	<b>Read</b> Intro chapter  <b>Discussion 1:</b> - Post by Wednesday, 6-26 - Comment by Saturday, 6-29
1	Solar energy and the atmosphere 1.1. The solar system and the sun 1.2. Energy and radiation 1.3. The seasons 1.4. Atmospheric composition and layering 1.5. Natural and anthropogenic air pollution	<b>Read</b> Chapter 1  <b>Exercise 1:</b> - Due by Friday, 6-28
2	Atmospheric energy 2.1. Energy balance and inputs 2.2. The greenhouse effect 2.3. Earth-atmosphere energy balance 2.4. Temperature measurement and controls 2.5. Urban environments 2.6. Worldwide temperature patterns and concepts	<b>Read</b> Chapter 2  <b>Quiz 1:</b> - Due Saturday, 6-29
<b>Week 2: Sunday 6-30 through Saturday 7-6</b>		
3	Pressure, winds, and currents 1.1. Wind 1.2. Atmospheric pressure and motion 1.3. Upper atmospheric circulation 1.4. Local and regional wind 1.5. Ocean currents and global circulation	<b>Read</b> Chapter 3  <b>Discussion 2:</b> - Post by Wednesday, 7-3 - Comment by Saturday, 7-6
4	Atmospheric water and weather 4.1. Water properties and humidity 4.2. Clouds and fog 4.3. Air masses 4.4. Midlatitude cyclones 4.5. Weather forecasting 4.6. Thunderstorms and tornadoes 4.7. Tropical cyclones	<b>Read</b> Chapter 4  <b>Exercise 2:</b> - Due by Saturday, 7-6
5	Water resources 5.1. Water resources and water budget 5.2. Surface water and groundwater 5.3. Fresh water supply and groundwater depletion 5.4. Water scarcity	<b>Read</b> Chapter 5  <b>Quiz 2:</b> - Due Saturday, 7-6
<b>Week 3: Sunday 7-7 through Saturday 7-13</b>		
6	Global climate systems 6.1. Earth's climate system and classification 6.2. Tropical and mesothermal climates 6.3. Microthermal, polar, and highland climates 6.4. Dry climates	<b>Read</b> Chapter 6  <b>Discussion 3:</b> - Post by Wednesday, 7-10 - Comment by Saturday, 7-13

7	<p>Climate change</p> <p>7.1. Earth's past climates</p> <p>7.2. Natural climate change and climate feedbacks</p> <p>7.3. Evidence and causes of current climate change</p> <p>7.4. Climate models</p> <p>7.5. The climate change debate</p> <p>7.6. How to address climate change</p>	<p><b>Read</b> Chapter 7</p> <p><b>Exercise 3:</b></p> <p>- Due by Friday, 7-12</p>
8	<p>Tectonics, earthquakes, and volcanism</p> <p>8.1. Geologic time and physical Earth history</p> <p>8.2. The rock cycle</p> <p>8.3. Plate tectonics</p> <p>8.4. Plate boundaries</p> <p>8.5. Deformation, folding, faulting, and mountains</p> <p>8.6. Earthquakes and volcanism</p>	<p><b>Read</b> Chapter 8</p> <p><b>Quiz 3:</b></p> <p>- Due Saturday, 7-13</p>
<b>Week 4: Sunday 7-14 through Saturday 7-20</b>		
9	<p>Weathering and mass movement</p> <p>9.1. Weathering and landforms</p> <p>9.2. Physical and chemical weathering</p> <p>9.3. Karst topography</p> <p>9.4. Mass movement</p>	<p><b>Read</b> Chapter 9</p> <p><b>Discussion 4:</b></p> <p>- Post by Wednesday, 7-17</p> <p>- Comment by Saturday, 7-20</p>
10	<p>Stream erosion and river systems</p> <p>10.1. Drainage basins</p> <p>10.2. Fluvial processes</p> <p>10.3. Stream channels and deposition</p> <p>10.4. Floodplains and humans</p>	<p><b>Read</b> Chapter 10</p> <p><b>Exercise 4:</b></p> <p>- Due by Friday, 7-19</p>
11	<p>Coastal systems and wind processes</p> <p>11.1. Oceans and coasts</p> <p>11.2. Coastal processes</p> <p>11.3. Human/environment coastal interactions</p> <p>11.4. Wind erosion and deposition</p>	<p><b>Read</b> Chapter 11</p> <p><b>Quiz 4:</b></p> <p>- Due Saturday, 7-20</p>
<b>Week 5: Sunday 7-21 through Saturday 7-27</b>		
12	<p>Glacial systems</p> <p>12.1. Glacial mass balance</p> <p>12.2. Glacial deposition and landscapes</p> <p>12.3. The Pleistocene</p> <p>12.4. Glaciers in the current warming cycle</p>	<p><b>Read</b> Chapter 12</p> <p><b>Discussion 5:</b></p> <p>- Post by Wednesday, 7-24</p> <p>- Comment by Saturday, 7-27</p>
13	<p>Ecosystems and soils</p> <p>13.1. Nutrient and biogeochemical cycles</p> <p>13.2. Soil profiles and characteristics</p> <p>13.3. Species habitats, niches, and interactions</p> <p>13.4. Ecosystems</p>	<p><b>Read</b> Chapter 13</p> <p><b>Exercise 5:</b></p> <p>- Due by Friday, 7-26</p>
14	<p>Terrestrial biomes</p> <p>14.1. Biogeography</p> <p>14.2. Soil classification</p> <p>14.3. Tropical biomes</p> <p>14.4. Midlatitude and desert biomes</p> <p>14.5. Tundra and anthropogenic biomes</p>	<p><b>Read</b> Chapter 14</p> <p><b>Quiz 5:</b></p> <p>- Due Saturday, 7-27</p>

**Note:** The GGS 102 course schedule is tentative and is subject to revision by the instructor