Astronomy 111 section DL2
Spring 2020 Syllabus

Section: Astro 111 DL2
Instructor: Gabriele Belle
Days: Material released Tuesday AM, weekly assignments due Mondays at midnight
Email: **gbelle@gmu.edu**
Office Hours: by appointment in the video classroom
Learning Assistant: Ana Radveziciute
Office hours and space: by appointment

Textbook (Required):

Textbook: This course has been designed as an "Open Educational Resource" course. This means that we have found a free on-line textbook, courtesy of OpenStax at Rice University. It is printable, or you can simply download and read the PDF copy. You can access it here as well: http://cnx.org/content/col11992/latest/

Technology requirements:

You will need reliable computer access to participate in this course. You will need to ***check emails (use your GMU account) and Blackboard regularly*** and will be required to submit materials and take quizzes online. You must download and install Respondus Lockdown Browser for the midterm and final exam and you need to be able to record your exam on video if you decide to do it at home. You can also choose to do the exam in the testing center. Your instructor will send you more information by email.

Please be sure you have adequate technology to access the site and do the required work. Go to My Mason, sign in and select the Courses tab, then look for the Astronomy 111 course. If you need help there is a section of the courses page of My Mason called *Courses 9.1 Resources for Faculty and Students* with helpful links. Other sources of help with Blackboard:

- Contact courses@gmu.edu and include your Mason email and G#
- Walk in and Phone support at the Collaborative Learning Hub, Johnson Center 311, (703) 993-3141
- Contact the ITU Support Center at (703) 993-8870 for general help, including login or network issues

COURSE GOALS: This science course fulfills 3 credit hours of general education science. If taken with a section of the Solar System lab (Astronomy 112), it satisfies the natural science core requirement for a lab science at GMU. It is designed to provide a stimulating environment for learning about the solar system and how astronomers come to understand things like the scale of the solar system and its likely origins as well as details about the various planets and other components of the solar system.

In addition to learning the basic facts necessary to have a good mental picture of the solar system and objects in it, students will have a chance to consider how scientists construct, test and evaluate theories, a powerful way of thinking that can be applied outside of purely scientific fields.

Natural science goals: The general education natural sciences 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.

To achieve these goals, students will:

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
    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).
5. Participate in scientific inquiry and communicate the elements of the process, including:
    A: Making careful and systematic observations
    B: Developing and testing a hypothesis
    C: Analyzing evidence
    D: Interpreting results

EXPECTED SKILLS: Some assignments require basic algebra and geometry skills. You will need to be able to enter formulas and work with a spreadsheet as well. Because homework and lecture material will be on-line and in the Blackboard course, reliable internet access is vital, and you will need to check email and Blackboard daily for updates and information.

COURSE STRUCTURE AND PHILOSOPHY: Readings, supplemental videos, and weekly quizzes are on Blackboard. This allows you to work in a somewhat self-paced and relaxed environment as you learn traditional lecture material.

In order to really understand you need to do something with the material. This includes participating in short on-line discussions, doing some "at home investigations" and taking two exams.

To succeed it is important for you to commit to doing your best working and thinking as you study the on-line materials and prepare discussion postings. The level of engagement and commitment required for this class is greater than for a typical lecture. As with all things worth doing, it will require effort, attendance, and preparation.

This course will have succeeded if long after you have forgotten the composition of the atmosphere of Jupiter you remember how to ask the kinds of questions a scientist might ask and continue to develop curiosity and interest about how the world works.

POLICIES:

Withdrawal – note the deadlines for this semester. Decide early if this course is not for you for some reason!

Other important dates for this class are in the table below see the GMU calendar for a complete listing. https://registrar.gmu.edu/calendars/spring-2020/

Students with Disabilities: Please contact The Office for Disability Services (SUB I, Suite 2250, Phone 703-993-2474, http://ods.gmu.edu if you have a learning or physical disability that will require accommodation in this course. You must obtain the proper paperwork and notify an instructor in advance to be accommodated.

Academic Integrity:
GMU is an Honor Code university (http://oai.gmu.edu/honor-code/masons-honor-code/); please see the University Catalog for a full description of the code and the honor committee process.

The principle of academic integrity is taken very seriously and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form.

You may discuss your ideas with others and conference with peers on drafts of the work; however, it is not appropriate to give your paper to someone else to revise. You are responsible for making certain that there is no question that the work you hand in is your own. If only your name appears on an assignment, I expect that you have done the work yourself, fully and independently.

GMU Email Accounts: Students must use their Mason email accounts to receive messages related to this course. See http://masonlive.gmu.edu for more information.

USEFUL CAMPUS RESOURCES:

Writing Center: A114 Robinson Hall; (703) 993-1200; http://writingcenter.gmu.edu

Counseling and Psychological Services (CAPS): (703) 993-2380 http://caps.gmu.edu

GRADING ELEMENTS: Grading for ASTRO 111 DE is based on a point system. See the table below for the point range needed for each letter grade. There is no extra credit in this course since you have ample opportunities to raise your point total. You can't get an A in the course by completely ignoring any one element.

ELEMENT	SCORING	POINTS PER SUBMISSION	TOTAL POSSIBLE POINTS
MIDTERM EXAM	You can choose to do the exam in the testing center in Planetary hall or at home with a Respondus Lockdown Browser.	120	120
DISCUSSIONS AND AT HOME INVESTIGATION	12 discussions and at-home investigations. These are scored on completeness and scientific accuracy.	Points vary depending on difficulty	130
QUIZZES	13 Weekly quizzes	10	130
FINAL EXAM		150	150
TOTAL POSSIBLE *(note that there are extra points. You must do the final exam, the midterm exam and enough discussions and at-home investigations to get the grade you want to achieve.).*			530

LECTURE MATERIALS: You will have a reading from the OpenStax Astronomy book each week. In addition, you will find supplementary materials and your quizzes on Blackboard. The quizzes are to be completed by Monday night and are based on the readings and supplementary materials.

Letter Grade	Points needed
A	465 - 500
A-	450 - 464
B+	435 - 449
B	415 - 434
B-	400 - 414
C+	375 - 399
C	350 - 374
C-	335 – 349
D	300 - 334
F	Below 300

Updated Schedule – 4/22/2020!

Week	Reading assignment from OpenStax textbook	Main ideas covered this week
Jan 21 - 27	Chapter 1: Science and the Universe	-Introduction – What is a solar system? -Overview of our solar system
Jan 28 - Feb 3	Chapter 4: Earth, Moon, and Sky	-Learning the night sky -Seasons and apparent motion of objects in the sky
Feb 4 - 10	Chapter 7: Other worlds: An introduction to the Solar system	-Overview of planets in the solar system and their origin -Composition and structure of planets
Feb 11 - 17	Chapter 2: Observing the Sky, Birth of Astronomy	-Motion and apparent motion in the sky -Sorting out what makes science different
Feb 18 - 24	Chapter 3: Orbits and Gravity	-Kepler's Laws -Newton's laws of motion -Newton's law of gravitation
Feb 25 - Mar 2	Chapter 5: Radiation and Spectra	-The behavior of light -The electromagnetic spectrum
Mar 3 – 4, 5	Midterm Exam	(Depends on Test Center availability)
Mar 3 – 23 *	Chapter 6: Astronomical Instruments	-Telescopes -Radio telescopes -Space based telescopes
Mar 24 - 30	Chapter 8: Earth as a planet	-Earth geology -Earth's atmosphere
Mar 31 – Apr 13	Chapter 9: Cratered Worlds Chapter 10: Earthlike Planets	-Moon and Mercury -Venus and Mars
Apr 21 - 27	Chapter 11: The Giant Planets Chapter 12: Rings, Moon and Pluto	-Giant planet overview -Atmospheres of giant planets -Rings and moons -New Horizon mission to Pluto
Apr 28 – May 4	Chapter 13: Solar System Debris	-Collisions! -Comets and meteorites
May 5 –May 11	Exam Review and Final Exam	All missing work due on May 11.

*** Spring Break from March 9 to 23. No assignment due during Spring Break.**