

ASTR 103

Astronomy

Fall 2021, Section 001

Instructor Information

Instructor	Contact	Lectures
<p>Dr. Rob Parks (He/Him)</p> <p>Office Hours MWF 11:00 AM - 12:00 PM</p> <p>Appointments also possible</p> <p>Office Location Research Hall, Room 216</p>	<p>Email jparks23@gmu.edu</p> <p>Office # (703) 993-1276</p> <p>Cell # (404) 840-8361</p> <p>Discord: https://discord.gg/gG7gb4x8</p>	<p>Lectures MW 4:30 - 5:45 PM</p> <p>Lecture Room Enterprise Hall, Room 80</p>

General Information

Course Goals

This course is part of the core curriculum for natural science and covers astronomy from the Solar System through stars, galaxies, and the birth, evolution, and fate of the Universe. As a survey course it will hit the hit points to give you a good background for understanding what the science of astronomy entails, what is known and what is still unknown, along with a taste of current happenings in a variety of fields studied by astronomers

Because it is a core course in natural science it is also important that you understand astronomy as an example of how scientists do their work and what distinguishes scientific study from other ways of looking at the work. Below are the goals of core natural science classes at George Mason University. Because there is no lab requirement for this 3-credit lecture course, Astronomy 103 is designed to meet the first four requirements. The fifth requirement, which has to do with getting a chance to practice scientific inquiry, happens in the laboratory course.

Course Description and General Education Course Statement

The Learning Outcomes of Astronomy 103: "Astronomy" are:

1. Understand how scientific inquiry is based on investigation of evidence from the natural world, and that scientific knowledge and understanding:
 - evolves based on new evidence
 - 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 changes (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, and d) interpreting results.

Research has shown most students only learn a limited amount of information from lecture alone regardless of how clear or engaging the material. Therefore, lectures are used to introduce you to the topic while classroom activities are designed to help better understand the material. The in-class activities include, but are not limited to, interactive questions and exercises. It cannot be understated regular reading of the textbook immensely aids providing context to the material presented in class.

Astronomy 103 is a Mason Core Course in Natural Sciences Overview. *Note:* ASTR 103 with ASTR 112 or ASTR 114 can be used to fulfill a 4-credit lab science requirement. Not for physics majors.

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.

Course Diversity Statement

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 can be voiced, heard, and respected.

The reflection of Mason's commitment to diversity and inclusion goes beyond policies and procedures to focus on behavior at the individual group and organizational level. The implementation of this commitment to diversity and inclusion is found in all settings, including individual work units and groups, student organizations and groups, and classroom settings; it is also found with the delivery of services and activities, including, but not limited to, curriculum, teaching, events, advising, research, service, and community outreach.

Acknowledging that the attainment of diversity and inclusion are dynamic and continuous processes and that the larger societal setting has an evolving socio-cultural understanding of diversity and inclusion, Mason seeks to continuously improve its environment. To this end, the University promotes continuous monitoring and self-assessment regarding diversity. The aim is to incorporate diversity and inclusion within the philosophies and actions of the individual, group and organization, and to make improvements as needed.

Course Information

Credit Hours: 3

Main Textbook: *Astronomy: At Play in the Cosmos*, 2nd Edition by Frank, ISBN: 978-0-393-41995-5 (epub)

Lecture Presentation Service: *Top Hat*, <https://tophat.com>

The course syllabus and all other course information can be found on both Blackboard and Top Hat course websites. This information can be accessed this by logging directly onto Blackboard (<https://blackboard.gmu.edu>) or by:

1. Logging onto the Top Hat website and finding the class using the Join Code 656085
2. By directly going to the course Top Hat website (<https://app.tophat.com/e/656085>).

It is your responsibility to check either web site regularly to prepare for class this and future information. You will also need to check your university email account regularly for course information updates.

Class Format - Lecture

The course adopts an inverted class structure – lectures will be videos watched before class. Videos will be hosted on the following channel: https://www.youtube.com/channel/UCqPt-mMHR1Bq-XxI7iyah_g. The following class session will begin with quiz questions hosted on Top Hat that relate to the previous day's lecture. Please arrive to class on time so as not to miss these questions.

The remaining class time will consist of a lecture review followed by work on lecture activities. These activities may include class demonstrations, but will many consist of group exercises to be completed in class.

Technology Basic Requirements

Activities and assignments in this course will regularly use the Top Hat (<https://app.tophat.com/e/656085>) and Blackboard learning system (<https://mymason.gmu.edu>).

Students are required to have regular, reliable access to a computer with an updated operating system (recommended: Windows 10 or Mac OSX 10.13 or higher) and a stable broadband Internet connection (cable modem, DSL, satellite broadband, etc., with a consistent 1.5 Mbps [megabits per second] download speed or higher. You can check your speed test on this website.)

Activities and assignments in this course will regularly use the Zoom web-conferencing software. In addition to the requirements above, students are required to have a device with a functional camera and microphone. In an emergency, students can connect through a telephone call, but video connection is the expected norm.

Assignments

In-class Quizzes

Starting on the second week of class, quiz questions will be interspersed with the lecture slides on Top Hat. You will have two minutes to answer each question using any laptop, tablet, smartphone, or through text messaging. You are encouraged to discuss the answer to the question with your neighbor. Given the online nature of the course, collaboration can be done through chat with other students. **Please do not discuss answers with the class as a whole.** The total quiz grade accounts for 15% of your final grade. Each question is worth two points. Answering the question will award a participation point contributing to your final grade. Answering the question correctly will award an extra credit point.

Lecture Activities

Research has shown that learning is facilitated by doing. In attempt to replicate this success in this course, most of the in-class time will be spent completing exercises related to the current lecture topic. These exercises will be done within groups *no less than 3* and *no more than 6*. The group process is to aid in the course goal of increasing student communication and cooperative work skills. The lecture activities will comprise 25% of the final grade and will be composed of the straight average of all assigned exercises with the lowest grade dropped. The exercises will be hosted on Top Hat and only be available when the class meets. If you are absent for a university accepted reason, please make arrangements with the professor to make up the assignment.

Homework

Weekly homework, starting during the second week of the term, will be assigned through Top Hat. Each assignment will be available from Monday at 00:01 AM to Sunday at 11:59 PM. The assignments will reflect the course material being covered during that particular week. The correct answers to the homework will be made available the week following the due date. If you have any questions regarding these answers, please feel free to get in contact. The final home grade, 25% of the course grade, is the average of all assignments after dropping the lowest score.

Final Exam

A comprehensive final exam covering all the material from the course will be administered on **December 8th, 4:30pm – 7:15pm**. The exam will be hosted on Top Hat only during this time. If you have a university sanctioned reason for needing to reschedule this exam, please let the instructor

know as soon as possible. The exam will consist of 100 questions ranging from multi-choice, sorting, and matching. The quality of question will heavily resemble those asked in the weekly homework assignments. The final exam will be curved by the equation below and will count for **25%** of your final grade.

Semester Observing Project

The Observing Project is a report to be completed at any observatory that allows public use of its telescopes. The report can be found on both Top Hat and Blackboard. The use of a personal telescope is also acceptable. The project requires the signature of the telescope attendant for the assignment to be graded. If the project is done using a personal telescope supply a picture of you with the telescope attached to the assignment in lieu of the signature. This project is worth **15%** of your final grade. It is **highly** recommended this project be completed early in the semester due to the unpredictability of the weather. Reports are to be uploaded to the following Google Drive:

<https://drive.google.com/drive/folders/1mh9beBmOs23NasISFyqSLitLla5an3g?usp=sharing>.

Place your report in a folder with your name on it. Assignments where no object was observed due to cloudy weather **will not** be accepted. The George Mason Observatory on campus is the best local option for this project. Here is a list of public nights for the George Mason Observatory:

Due Date: Monday, December 6th

George Mason University Observatory Public Nights

<https://sites.google.com/view/georgemasonobservatory/evenings-under-the-stars>

All public nights run from 7:00 PM to 9:00 PM and meet virtually on Zoom at

<https://gmu.zoom.us/j/91525954268>

September 2nd
 September 16th
 September 30th
 October 14th

October 28th
 November 11th
 December 2nd

Grade Distribution

Assignment	Percentage
Lecture Quizzes	10%
Observing Project	15%
Homework	25%
Lecture Activities	25%

Final Exam

25%

Grade Scale

Letter Grade	Numerical Scale	Letter Grade	Numerical Scale
A+	96 – 100%	C+	72 – 75.99%
A	92 – 95.99%	C	68 – 71.99%
A-	88 – 91.99%	C-	64 – 67.99%
B+	84 – 87.99%	D	60 – 63.99%
B	80 – 83.99%	F	BELOW 60%
B-	76 – 79.99%		

Course Policies and Services

- **Course Materials and Student Privacy**

- All course materials posted to Blackboard or other course site are private to this class; by federal law, any materials that identify specific students (via their name, voice, or image) must not be shared with anyone not enrolled in this class.
 - Video recordings – whether made by instructors or students – of class meetings that include audio, visual, or textual information from other students are private and must not be shared outside the class.
 - Live video conference meetings (e.g. Zoom) that include audio, textual, or visual information from other students must be viewed privately and not shared with others in your household or recorded and shared outside the class.
 - **All of our synchronous meetings in this class will be recorded to provide necessary information for students in this class.** Recordings will be stored on Blackboard and Top Hat and will only be accessible to students taking this course during this semester.

- **Disability Services**

- 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 for this class, please first

visit <http://ds.gmu.edu/> for detailed information about the Disability Services registration process. The please discuss your approved accommodations with the professor. Disability Services is located in Student Union Building (SUB I), Suite 2500. Email: ods@gmu.edu | Phone: (703) 993-2474

- **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 (730-380-1434)* or *Counseling and Psychological Services (703-993-2380)*. You may also seek assistance from *Mason’s Title IX Coordinator (703-993-8730 | titleix@gmu.edu)*

- **Email and Communication**

- Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not respond to messages from or send messages to a non-Mason email address.
- It is your responsibility to stay current with all information either communicated through email or posted to either the Top Hat or Blackboard page. Please check you GMU email and the course pages regularly.
- Email sent to the instructor is normally checked during business hours and a response sent out within one business day. If you do not receive a reply within that timeframe, please follow-up with a reminder email. Instantaneous responses, responses to emails past 10 PM, or during the weekends should not be expected.
- All emails need to include your name and the course in which you are enrolled. Additionally, the email needs to include a greeting and be written in a professional manner. Emails that do not conform to these requirements may be ignored at the instructor’s discretion.

- **Additional Services and Support**

- George Mason has a wide variety of support services for students. Please visit the following website for information about on-campus resources:
<https://stearnscenter.gmu.edu/knowledge-center/knowning-mason-students/student-resources-on-campus/>

- **Attendance and Absences**

- From GMU Policy Statement 22: “Class attendance is the responsibility of the student. The student is expected to attend all classes. A student who finds it necessary to miss class assumes responsibility for making up examinations, obtaining lecture notes, and otherwise compensating for what may have been missed. The course instructor will determine the validity of a student’s reason(s) for absences and will assist those students who have valid reasons.”
- Attendance will be taken each class as a way to ensure in-class activities are completed in the classroom.
- If you miss a graded assignment and believe that you qualify for an excused absence, contact the instructor within 48 hours and provide a copy of the absence excuse within

one week, unless physically unable to do so. Failure to follow these deadlines will result in the absence being considered unexcused.

- Note: if a class is missed, attendance of another section of the same course is not permitted.
- **Limit on Course Repeats**
 - There is a limit of three graded attempts for this course. A *W* does not count as a graded attempt. Please see AP. 1.3.4 in the University Catalog and consult with your academic adviser if you have any questions.
- **GMU Code of Student Conduct**
 - Students are expected to follow the George Mason University rules of student honor. As noted in the catalog: “George Mason University shares in the tradition of an honor system that has existed in Virginia since 1842. The Honor Code is an integral part of university life. On the application for admission, students sign a statement agreeing to conform to and uphold the Honor Code. Therefore, students are responsible for understanding the provisions of the code. In the spirit of the code, a student’s word is a declaration of good faith acceptable as truth in all academic matters. Therefore, cheating and attempted cheating, plagiarism, lying, and stealing of academic work and related materials constitute Honor Code violations. To maintain an academic community according to these standards, students and faculty must report all alleged violations of the Honor Code to the Honor Committee. Any student who has knowledge of, but does not report, an Honor Code violation may be accused of lying under the Honor Code.” (Source: <http://www.gmu.edu/catalog/apolicies/index.html>)
- **Instructor’s Intended Purpose**
 - The student’s work must match the instructor’s intended purpose for an assignment. While the instructor will establish the intent of an assignment, each student must clarify outstanding questions of that intent for a given assignment.
- **Unauthorized/Excessive Assistance**
 - The student may not give or get any unauthorized or excessive assistance in the preparation of any work.
- **Authorship**
 - The student must clearly establish authorship of a work. Referenced work must be clearly documented, cited, and attributed, regardless of media or distribution. Even in the case of work licensed as public domain or Copyleft (See: <https://creativecommons.org/>) the student must provide attribution to that work in order to uphold the standards of intent and authorship.
- **Declaration**
 - Online submission of, or placing one’s name on an exam, assignment, or any course document is a statement of academic honor that the student has not received or given inappropriate assistance in completing it and that the student has complied with the Academic Honesty Policy in that work.
- **Consequences**

- An instructor may impose a sanction on the student that varies depending upon the instructor's evaluation of the nature and gravity of the offense. Possible sanctions include but are not limited to, the following: (1) Require the student to redo the assignment; (2) Require the student to complete another assignment; (3) Assign a grade of zero to the assignment; (4) Assign a final grade of "F" for the course. A student may appeal these decisions according to the Academic Grievance Procedure (See the relevant section in the LSU Code of Student Conduct.). Multiple violations of this policy will result in a referral to the Conduct Review Board for possible additional sanctions.
- **Academic Dates and Deadlines**
 - Students must be aware of important dates during the semester. These dates are available at https://registrar.gmu.edu/calendars/spring_2021/
- **Smoking and Tobacco Products**
 - George Mason University is committed to providing a safe, healthful, and pleasant learning and working environment for Mason students, faculty, and staff. The purpose of this policy is to address the use of all tobacco products and electronic cigarettes, as well as ensure compliance with the Virginia Indoor Clean Air Act and Virginia Executive Order 41. Virginia Executive Order 41 states that smoking is not permitted within buildings, facilities, enclosed structures, or vehicles owned, leased or rented by the University.
 1. Executive Order 41 applies to parking garages, covered walkways, temporary enclosed structures, trailers, and tents, as well as structures placed on state-owned property by contractors or vendors.
 2. Smoking is not permitted outdoors within 25' of any building or facility entrance/exit (including parking garages, loading docks, etc.), outdoor air intake, operable window, or covered walkway. Smokers are requested to use ash urns to dispose of their smoking material waste and should not litter on state-owned property with smoking material waste.
 3. Smoking locations should not impede traffic flow in or out of buildings and should be in a location where smoke cannot drift into office, class or living spaces.
 4. Faculty, staff, student and visitor smokers are required to comply with Office of Housing and Residence Life policies and guidelines as they relate to smoking.
 - The use of electronic cigarettes (e-cigs) also known as vaping will follow the same guidelines as the use of all tobacco products.