Instructor: Dr. Robert H. Gowdy, 710 W Grace St. 2411, Tel: 828-1821, email: rhgowdy@vcu.edu.

Class Schedule Sec 001: MWF 9am-9:50am MCALC 1107
Class Schedule Sec 002: MWF 8am-8:50am MCALC 1107

Office hours: By appointment.

Required Item: TopHat Subscription (4 months: $26; 1 year: $38; Lifetime: $75)

Top Hat: We will be using the Top Hat (www.tophat.com) classroom response system in class. You will be able to submit answers to in-class questions using Apple or Android smartphones and tablets, laptops, or through text message.

You can visit the Top Hat Overview (https://success.tophat.com/s/article/Student-Top-Hat-Overview-and-Getting-Started-Guide) within the Top Hat Success Center which outlines how you will register for a Top Hat account, as well as providing a brief overview to get you up and running on the system.

An email invitation will be sent to you by email, but if you don’t receive this email, you can register by simply visiting our course website: Unique Course URL:

https://app.tophat.com/e/480629 for Sec 001 (9am class) and
https://app.tophat.com/e/054932 for Sec 002 (8am class)

Note: our Course Join Code is 480629 for Sec.001 (9am class) and 054932 for Sec 002 (8am class).

Top Hat will require a paid subscription, and a full breakdown of all subscription options available can be found at www.tophat.com/pricing.

Should you require assistance with Top Hat at any time, due to the fact that they require specific user information to troubleshoot these issues, please contact their Support Team directly by way of email (support@tophat.com), the in app support button, or by calling 1-888-663-5491.

Optional Textbooks: Astronomy: A Beginners Guide... (5th 6th or 7th Ed.) by Chaisson/McMillan.
Astronomy Study Guide: Notes to Accompany the Online Textbook by Robert H. Gowdy

Open Website: The course will be taught from notes on the open World Wide Web. From the VCU home page (http://www.vcu.edu), type "Gowdy" in the search box. Then click:

Go → Robert H. Gowdy Homepage → P103

To go directly to the primary site, use the URL: http://www.courses.vcu.edu/PHY-rhg/astron/

The Open Website is accessible to anyone and will remain available to you after you have completed the course.

Blackboard Website: Our course also has a website on Blackboard. No course materials are presented there, but the Blackboard website provides access to our student journal, online tests, a summary of your grades, and a place to turn in project materials for grading. The Blackboard website may be accessed only by students who are currently enrolled in this course.

LON-CAPA Website: All of the possible multiple-choice test and quiz questions are available for practice at his website. In addition, there are numerical answer questions to test your understanding of formulas. To get there, go to http://loncapa.vcu.edu, log in with your VCU eID (your VCU email login). The login has a third line called "Domain:" Be sure that it is set to "vcu." Select PHYS 103 from your course list. Then select "Course Contents" from the main menu at the top of the display.
Material: Chapters P; 1-18 in textbook. Modules 1-29 in notes on the open web page and in the Study Guide.

Astronomy answers the basic question “What is our place in the Universe?” As the oldest of the sciences it offers many examples of how science works. As a science that takes the entire universe as its subject matter it incorporates and applies all of the other sciences. You will learn how the combination of measurements and well-tested models makes it possible to know things that we could never experience directly. We know the distance to the center of the Earth even though no-one has ever gone there. Similarly we know the temperature and chemical composition of the center of the Sun and many other seemingly impossible things. You will learn how very special life on Earth is when we discuss the conditions that might be required for life elsewhere. You will learn ways to think rationally about unlikely but terrifying events such as asteroid impacts. You will learn the power of the basic laws of motion that come from physics when we discuss the motion of planets and the prediction of asteroid impacts. You will learn the origin of the Sun’s energy and you will learn how life on Earth uses that energy.

Course Objectives: You will

1. be able to think critically about the processes and results of science.
2. know the science behind events, such as climate change, earthquakes, and asteroid impacts, that can affect the entire Earth and be able to apply this knowledge to matters of public discussion.
3. know how life on Earth reproduces and be able to apply this knowledge to discussions about the search for life elsewhere.
4. be able to use formulas to calculate such things as the distances to stars and the risk implied by an asteroid impact prediction.
5. be able to use a graphical representation of data to understand the life histories of stars.
6. be able to find and judge the accuracy of information about science.

Projects: Up to 5% extra credit may be earned by completing the Moon Observation Project. Preview deadline: September 22, 2017; Project deadline: November 10, 2017. See the project instructions for details.

Pre- and Post-Tests: 1% extra credit may be earned by taking the online Science Literacy Assessment exam as a pre-test at the start of the semester and as a post-test at the end of the semester. These tests will be available at our Blackboard web site and are announced through your VCU email.

Exams: Each hour exam is approximately 50 multiple choice questions with questions on each module covered. The hour exams will be given in class on the following dates:

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Weeks</th>
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<tbody>
<tr>
<td>Sep 15</td>
<td>1,2,3,4</td>
</tr>
<tr>
<td>Oct 16</td>
<td>5,6,7,8</td>
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<tr>
<td>Nov 6</td>
<td>9,10,11</td>
</tr>
<tr>
<td>Dec 1</td>
<td>12,13,14</td>
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</tbody>
</table>

The final exam is comprehensive and consists of approximately 120 multiple choice questions with at least one question on each module covered.

Sec 001: MCALC 1107 at 8:00am on Wednesday, Dec 13, 2017
Sec 002: MCALC 1107 at 8:00am on Monday, Dec 18, 2017

You must take the final exam!

Last Day to Drop with a W: November 3, 2017
In-class Participation: The questions in the notes will be used to give quizzes during most lectures. After a major point is covered or reviewed, a question about that point will be displayed and you will be asked to discuss it with your neighbors and indicate your answer on a mobile device or phone. Note that the total number of questions on a quiz does not matter, just the percent correct counts toward your grade. A perfect quiz is worth 100 points.

Letters Participation: An on-line student journal, Astronomy Student Letters, is available as a moderated discussion forum on the Blackboard website. Participation in the journal adds to your overall class participation score and also provides your Information Fluency Score. You may submit up to one article to each issue of the journal. Articles follow a set format and are graded in detail. You may submit up to ten replies or comments (or replies to replies, etc.) in each issue. An accepted article can have a score of up to 200 points. An accepted comment is worth 10 points. Read Letter Guidelines for the full details about the format and grading of letters. Read Using the Letters for instructions on reading the journal and submitting comments.

Class Participation Score: Class participation is a requirement of this course. It is not enough to know all the course material, you must discuss the material with others, either in class or in the Letters. Calculate your Class Participation Total as follows:

1. Drop the lowest four of your first five quiz scores.
2. Add up all the remaining quiz scores.
3. Add all of your Letter and Comment scores.

Now divide this total by the number of quizzes that actually counted (total number minus 4) to get your Class Participation Score. Notice that a Letter article with a perfect score (200) plus the allowed 10 comments adds the same as a week’s worth of quizzes with perfect scores, so you can use letter participation to make up for missed quizzes. Also notice that, by doing both the quizzes and the letters you can easily get your class participation score to go over 100. If the score goes over 120, then it is set back to 120, but you can still get up to 20 points extra class participation credit.

Information Fluency Score: The ability to look up, evaluate, and communicate information about science topics is a requirement of this course. To fulfill this requirement you will need to submit one or more student letters to our online journal. For each issue of the student letter journal, the information fluency credit is the amount by which the letter score exceeds 100. For example, a score of 155 would yield an information fluency credit of 55. A score of 95 would yield an information fluency credit of zero. Calculate your Information Fluency Score as follows:

Add up your information fluency credits from all issues of the journal.
If the result is over 100, set it back to 100.

If you get a perfect score of 200 on a letter (extremely unlikely by the way) then you already have an information fluency score of 100% and are done with the Information Fluency requirement. Most letters get lower scores, so you may need to do two or more letters to get the maximum score. Some letters get scores of less than 100, which add nothing at all to the information fluency credit, so be careful to read the Letter Guidelines to see what is wanted.

Grading: Each exam has a maximum score of 100. Compute your final score from your five exam scores (4 hour exams and the final), class participation score, and information fluency score as follows:

1. Total the highest four of your five exam scores.
2. Add twice the final exam score.
3. Add the class participation score.
4. Add the information fluency score.
5. Divide the result by eight.

Note that step 1 means that your lowest hour exam score gets replaced by your final exam score unless the final exam score is even lower.

Your score determines your grade: A=90.0-100.0, B=80.0-89.9, C=69.5-79.9, D=59.5-69.4
**Make-up Policy:** If you know that you cannot take an exam on the scheduled date, arrange to take a make-up before the scheduled date. **Makeup exams will not ordinarily be given after the scheduled exam dates.** Emergency absences are taken care of by step 1 in the grading scheme above.

**Makeup final exams** will be given only in conjunction with requests for grades of incomplete. Because our two final exam dates are five days apart, I will need to enter a grade of "Incomplete" for students from section 001 who take the exam with section 002.

**In-class quizzes may not be made up** but you can use participation in the Astronomy Student Letters to compensate for missing quiz grades.

### Tentative Schedule of Topics

<table>
<thead>
<tr>
<th>Week/Date</th>
<th>Modules</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1 Aug26</td>
<td>1</td>
<td>Syllabus, Sky Motions</td>
</tr>
<tr>
<td>2 Aug 29-/2</td>
<td>2, 3,4</td>
<td>Modelling The Earth and Planets</td>
</tr>
<tr>
<td>3 Aug 7,9</td>
<td>5,6,7,8</td>
<td>Science and Model Building, Models of Motion</td>
</tr>
<tr>
<td>4 Sep 12,14</td>
<td>8, 9,-</td>
<td>Motion, Gravity, Exam 1</td>
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<tr>
<td>5 Sep 19-23</td>
<td>10, 11</td>
<td>Solar System Overview</td>
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<tr>
<td>6 Sep 26-30</td>
<td>11, 12</td>
<td>Terrestrial Planets</td>
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<tr>
<td>7 Oct 3-7</td>
<td>12</td>
<td>Jovian Planets</td>
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<tr>
<td>8 Oct 10, 12-</td>
<td>13, 14</td>
<td>Comets, Formation of the Solar System, Exam 2</td>
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<tr>
<td>9 Oct 17,19</td>
<td>15, 16, 17</td>
<td>Atmosphere and Interior of Earth, Earth Impacts</td>
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<tr>
<td>10 Oct 24-28</td>
<td>18, 19</td>
<td>Requirements for Life, Search for Life</td>
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<tr>
<td>11 Oct 31./4</td>
<td>20, 21</td>
<td>Measuring Star Distances and velocities</td>
</tr>
<tr>
<td>12 Nov -9,11</td>
<td>21, 22,</td>
<td>Exam 3, Star Brightnesses</td>
</tr>
<tr>
<td>13 Nov 14-18</td>
<td>23,24</td>
<td>Star Colors andThe Hertzsprung-Russell Diagram</td>
</tr>
<tr>
<td>14 Nov 21,23</td>
<td>24,25,26</td>
<td>The Births and Deaths of Stars</td>
</tr>
<tr>
<td>15 Nov 28,30,-</td>
<td>27,-</td>
<td>Supernovas,Exam 4</td>
</tr>
<tr>
<td>16 Dec. 5-9</td>
<td>28, 29</td>
<td>Neutron Stars, Black Holes, The Milky Way Galaxy</td>
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</tbody>
</table>
Statements for Syllabi and Blackboard Pages

This content was last updated in August 2017. When linking to the online syllabus statements, please use http://go.vcu.edu/syllabus

The topics include:

- Campus emergency information
- Class registration required for attendance
- Honor System: upholding academic integrity
- Important dates
- Managing stress
- Mandatory responsibility of faculty members to report incidents of sexual misconduct
- Military short-term training or deployment
- Student conduct in the classroom
- Student email policy
- Student financial responsibility
- Students representing the university - excused absences
- Students with disabilities
- Withdrawal from classes
- Faculty communication about students

Campus emergency information
What to know and do to be prepared for emergencies at VCU:

- Sign up to receive VCU text messaging alerts. Keep your information up-to-date. Within the classroom, the professor will keep his or her phone on to receive any emergency transmissions.
- Know the safe evacuation route from each of your classrooms. Emergency evacuation routes are posted in on-campus classrooms.
- Listen for and follow instructions from VCU or other designated authorities. Within the classroom, follow your professor's instructions.
- Know where to go for additional emergency information.
- Know the emergency phone number for the VCU Police (828-1234).
- Report suspicious activities and objects.
- Keep your permanent address and emergency contact information current in eServices.

Class registration required for attendance

Students may attend only those classes for which they have registered. Faculty may not add students to class rosters or Blackboard. Therefore, if students are attending a class for which they have not registered, they must stop attending.

Honor System: upholding academic integrity

The VCU Honor System policy describes the responsibilities of students, faculty and administration in upholding academic integrity, while at the same time respecting the rights of individuals to the due process offered by administrative hearings and appeals. According to this policy, "Members of the academic community are required to conduct themselves in accordance with the highest standards of academic honesty, ethics and integrity at all times." In addition, "To support a commitment to the Honor System, all members of the VCU community are required to:

- Adhere to the Honor System policy and its procedures;
• Report any suspicion or knowledge of possible violations of the Honor System;
• Answer truthfully when called upon to do so regarding Honor System matters;
• Maintain appropriate confidentiality regarding related to Honor System matters.”

More information can be found at in the VCU policy library.

Important dates

You can view important dates for the semester in the academic calendar.

Managing stress

Students may experience situations or challenges that can interfere with learning and interpersonal functioning including stress, anxiety, depression, alcohol and/or other drug use, concern for a friend or family member, loss, sleep difficulties, feeling hopeless or relationship problems. There are numerous campus resources available to students including University Counseling Services (804-828-6200 MPC Campus, 804-828-3964 MCV Campus), University Student Health Services (MPC 804 828-8828, MCV Campus 804 828-9220) and the Wellness Resource Center (804-828-9355). 24 hour emergency mental health support is available by calling 828-1234 and asking to speak to the on-call therapist or utilizing the National Suicide Prevention Lifeline (1-800-784-2433).

Mandatory responsibility of faculty members to report incidents of sexual misconduct

It is important for students to know that all faculty members are mandated reporters of any incidents of sexual misconduct/violence (e.g., sexual assault, sexual exploitation and partner or relationship violence). This means that faculty cannot keep information about sexual misconduct/violence confidential if you share that information with them and they must report this information immediately to the university’s Title IX Coordinator. In addition, department chairs, deans, and other unit administrators are required to report incidents of sex or gender-based discrimination to the university’s Title IX Coordinator. Once a report is made, you will receive important information on your reporting options, on campus and off campus resources and remedial measures such as no-contact directives, residence modifications, and academic modifications. If you would prefer to speak with someone confidentially for support and to discuss your options for reporting, contact:

VCU's Wellness Resource Center 804.828.9355 | myoptions@vcu.edu | thewell.vcu.edu
Greater Richmond Regional Hotline (Community program) 804.612.6126 | 24-hour hotline
VCU’s Counseling Services 804-828-6200

For more information on how to help, please click here. The Policy on Sexual Misconduct/Violence and Sex/Gender Discrimination, can be found in the VCU policy library. For more information about the University's Title IX process, please visit equity.vcu.edu.

Military short-term training or deployment

If military students receive orders for short-term training or for deployment/mobilization, they should inform and present their orders to Military Student Services and to their professor(s). For further information on policies and procedures contact Military Student Services at 828-5993 or access the corresponding policies.

Student conduct in the classroom

According to the Faculty Guide to Student Conduct in Instructional Settings, "The university is a community of learners. Students, as well as faculty, have a responsibility for creating and maintaining an environment that supports effective instruction. In order for faculty members (including graduate
teaching assistants) to provide and students to receive effective instruction in classrooms, laboratories, studios, online courses, and other learning areas, the university expects students to conduct themselves in an orderly and cooperative manner." Among other things, cell phones should be turned off while in the classroom. The Student Code of Conduct also prohibits the possession of or carrying of any weapon. For more information see http://register.dls.virginia.gov/details.aspx?id=3436.

Student email policy

Email is considered an official method for communication at VCU because it delivers information in a convenient, timely, cost-effective, and environmentally aware manner. Students are expected to check their official VCU email on a frequent and consistent basis in order to remain informed of university-related communications. The university recommends checking email daily. Students are responsible for the consequences of not reading, in a timely fashion, university-related communications sent to their official VCU student email account. This policy ensures that all students have access to this important form of communication. It ensures students can be reached through a standardized channel by faculty and other staff of the university as needed. Mail sent to the VCU email address may include notification of university-related actions, including disciplinary action. Please read the policy in its entirety at the VCU Policy Library.

Student financial responsibility

Students assume the responsibility of full payment of tuition and fees generated from their registration and all charges for housing and dining services, and other applicable miscellaneous charges. Students are ultimately responsible for any unpaid balance on their account as a result of the University Financial Aid Office or their third party sponsor canceling or reducing their award(s).

Students representing the university – excused absences

Students who represent the university (athletes and others) do not choose their schedules. Student athletes are required to attend games and/or meets. All student athletes should provide their schedules to their instructors at the beginning of the semester. The Intercollegiate Athletic Council strongly encourages faculty to treat missed classes or exams (because of a scheduling conflict) as excused absences and urges faculty to work with the students to make up the work or exam.

Students with disabilities

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, as amended, require that VCU provide "academic adjustments" or "reasonable accommodations" to any student who has a physical or mental impairment that substantially limits a major life activity. To receive accommodations, students must register with the Office of Student Accessibility and Educational Opportunity on the Monroe Park Campus (828-2253) or the Division for Academic Success on the MCV campus (828-9782). Please also visit the Student Accessibility and Educational Opportunity website and/or the Division for Academic Success website for additional information.

Once students have completed the registration process, they should schedule a meeting with their instructor(s) and provide their instructor(s) with an official accommodation letter. Accommodation letters will outline the required classroom accommodations. Additionally, if coursework requires the student to work in a lab environment, the student should advise the instructor or a department chairperson of any concerns that the student may have regarding safety issues related to a disability. Students should follow this procedure for all courses in the academic semester.
Withdrawal from classes

Before withdrawing from classes, students should consult their instructor as well as other appropriate university offices. Withdrawing from classes may negatively impact a student’s financial aid award and his or her semester charges. To discuss financial aid and the student bill, visit the Student Services Center at 1015 Floyd Avenue (Harris Hall) and/or contact your financial aid counselor regarding the impact on your financial aid.

Faculty communication about students

VCU instructional faculty, administrators and staff maintain confidentiality of student records and disclose information in accordance with the Family Educational Rights and Privacy Act (FERPA). This means that VCU officials may disclose student record information without the consent of the student in certain situations. To support university operations, for example, VCU officials share information about students with other educational officials as necessary to perform their job duties. FERPA permits this disclosure to school officials who have a legitimate educational interest in the student information. In addition, VCU officials have obligations to report information shared by a student depending on the content of that information, for example, in compliance with VCU’s policy on the duty to report (policy.vcu.edu). Unless FERPA permits a certain disclosure, VCU generally requires consent from a student to disclose information from their education record to another individual. You may find additional information on the VCU FERPA website: http://rar.vcu.edu/records/family-educational-rights-and-privacy-act/.