120-01/02 Our Universe: The Planets

Jonathan Morris

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Our Universe: The Planets  
PHYS120-01 & PHYS120-02  
Spring Semester, 2014

Instructor: Dr. Jonathan Morris  
Office: 107 Lindner Hall  
Phone: 745-3633  
Email: morrisd3@xavier.edu  
Lecture times: T R 1.30pm-2.20pm (section 01) and T R 2.30pm-3.20pm (section 02)  
Lecture room: 103 Lindner Hall  
Office Hours: M 1.30pm-3.00 pm, W 3.30pm-5pm

We all live in an amazing place at an amazing time of discovery. All of us are alive because we are at just the right distance from the nearest star, our Sun, to allow liquid water and life to exist. Since we all stopped work for the fall 2013 semester China has landed an unmanned mission on the Moon. At this exact moment India and the USA have two manmade objects, each no heavier than a small car, heading towards our neighboring planet Mars to investigate the Martian atmosphere. After you started class this year, on 12th September 2013, the first ever man made craft to leave the Solar System – Voyager 1 – passed the edge of the Sun’s influence and started to explore interstellar space! Incredibly 36 years after launch Voyager is still sending back useful data. Equally as amazing, 10 years ago Europe sent a mission to a comet and in January 2014 will wake the spacecraft up from its hibernation and in November 2014 will try to land on the comet in a Solar system first. In this course we will journey through space and join the scientists behind these missions as we explore our Sun and its solar system along the way we will discover amazing details about our solar system.

THE AIM OF THE COURSE
This introductory course explores basic astronomical phenomena related to our solar system. The goal of the course is to allow students to gain a conceptual understanding of astronomy in a manner that fosters critical thinking and problem solving skills. Students will analyze and interpret charts, graphs, and quantitative and qualitative data.

TEXTBOOK
Horizons: Exploring the Universe by Seeds & Backman (Brooks/Cole Cengage)

COURSE CONTENT
The course is split into two parts. As a class we will aim to cover the following chapters.

Chapter 1. Here and Now.  
Chapter 3. Cycles of the Sun and Moon  
Chapter 5. Light and Telescopes.

Part II – The Solar System (part 4 in the book)
Chapter 15. Origin of the Solar System  
Chapter 16. Earth and Moon  
Chapter 17. Mercury, Venus and Mars  
Chapter 18. The outer Solar System.

THIS SYLLABUS CAN CHANGE. REGULARLY CHECK THE COURSE WEBSITE FOR DETAILS.
COURSE MATERIAL
The syllabus, all lecture notes, assignment details, other handouts and grades will be available via the course Canvas website. It is your responsibility to check the course website regularly for course material and grades.

LECTURE FORMAT
Lectures will be delivered in person at the allocated time and location. If this is not possible due to the planned absence of the instructor then video lectures may be posted online for you to watch. Replacement of lectures with video lectures will be announced beforehand either in class or via email. The material covered in these video lectures will be examined in the same way that material from a normal lecture and therefore you are expected to learn from them as you would a normal lecture. When normal lectures are possible then video lectures will not be provided as an alternative.

HOMEWORK
Homework assignments will be set in two ways. Either (1) online via the http://login.cengagebrain.com website or (2) by a document uploaded to Canvas.

You will receive information about how to sign up for the homework and how to use the website once the publisher has forwarded this information to me. All online homework will be graded online.

All homework assigned via a document on Canvas requires you to follow all instructions on the document.

Attendance of lectures will help the students earn the best grade possible in homework and exams.

SURVEYS
These are regular quizzes through Canvas found by clicking on the Quizzes button on the homepage. Answer all questions and you will earn points. The purpose of the quizzes is to provide me with an understanding of the knowledge of the class to help him understand what material needs to be focused on. If the quiz is not anonymous then it will say, otherwise I will not know who gave a particular answer.

Anonymous surveys will also be used to gauge your feelings about the course and particular aspects of the course.

SCIENCE COMMUNICATION PROJECT
A group writing assignment will make up a proportion of your grades for this course. You will join a group of 5-6 students and research a topic which is related to this course. Mid-semester you will submit a draft of your assignment for peer review (your fellow students will get to give constructive feedback) and you will have the opportunity to give feedback on the work of the other groups. The peer-review gives you a chance to improve your work. Later in the semester you will submit the report and earn points for your group writing assignment, personal contribution to the work based on minutes of group meetings and for your contribution to the peer-review process.

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Detailed instructions for the science communication project are provided in a different document that can be found by going to the science communication project page of the course Canvas website.

**GRADING POLICY**
All exams, the science communication project and homework will count towards the final grade. The final exam will be comprehensive and will cover all of the material that we have worked through in lectures/homework during the semester.

Failure to complete homework, complete a survey, complete any part of the science communication project or to attend an exam will result in a mark of zero for that assignment unless you provide a timely and satisfactory reason. If you have a valid reason for missing the assignment then you need to let me know preferably before the absence or within one week after the absence. If you fail to give a reason for the absence within one week then you will earn zero for that assignment.

In case of emergencies on or before the exam date, all reasonable attempts to contact me or the department secretary must be made. Contact details can be found at the beginning of this syllabus.

The final grade will be determined by the following grading scheme:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm exam #1:</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm exam #2:</td>
<td>20%</td>
</tr>
<tr>
<td>Final exam (cumulative):</td>
<td>25%</td>
</tr>
<tr>
<td>Group Science Communication Project</td>
<td>20%</td>
</tr>
<tr>
<td>Homework:</td>
<td>10%</td>
</tr>
<tr>
<td>Survey quizzes:</td>
<td>5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

**EXAMS**

*Tentative exam dates (these exam dates are flexible and will be confirmed in class)*

- Exam #1: 13\(^{th}\) February 2014
- Exam #2: 10\(^{th}\) April 2014

*Final Exam dates (these dates are fixed – make sure that you know your section number)*

- Section 01: 8\(^{th}\) May 2014 @ 10.30am-12.20pm
- Section 02: 6\(^{th}\) May 2014 @ 1.00pm-2.50pm

Course fact sheets will be provided for each exam and will be distributed before the exam to help you prepare. The exams are closed book.

**All exams will take place in the normal lecture room.**
**MISSING EXAMS**
If you miss an exam or have to leave during an exam due to illness then you must let me know the reason for the absence as soon as possible (within one week). Also, when relevant, you must provide a doctor’s note (the McGrath Student Health Center can help with this if you do not have a doctor or you do not have health insurance). If you have provided a satisfactory reason for missing an exam then I will decide what course of action to make sure that you do not lose out.

**GRADING SCALE**

<table>
<thead>
<tr>
<th>Score Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>93.0-100</td>
<td>A</td>
</tr>
<tr>
<td>90.0-92.9</td>
<td>A-</td>
</tr>
<tr>
<td>87.0-89.9</td>
<td>B+</td>
</tr>
<tr>
<td>83.0-86.9</td>
<td>B</td>
</tr>
<tr>
<td>80.0-82.9</td>
<td>B-</td>
</tr>
<tr>
<td>77.0-79.9</td>
<td>C+</td>
</tr>
<tr>
<td>73.0-76.9</td>
<td>C</td>
</tr>
<tr>
<td>70.0-72.9</td>
<td>C-</td>
</tr>
<tr>
<td>67.0-69.9</td>
<td>D+</td>
</tr>
<tr>
<td>60.0-66.9</td>
<td>D</td>
</tr>
<tr>
<td>0-59.9</td>
<td>F</td>
</tr>
</tbody>
</table>

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