PHY 1040 - Astronomy: the Solar System
4 Credit Hours
Fall 2018

THIS IS AN ONLINE COURSE

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Virtual Office Hours: upon request - via video conferencing or by phone
Course Management System: Moodle

Course (Catalog) Description: The Sun, planets, space travel, the search for extraterrestrial life.
Topics include: The Universe and its Motion; Observing the Sky; Matter and Energy; Light; Telescopes and Spacecrafts; History of Astronomy.
The Solar System and its Formation: the Sun, the Planets and Remnants; Characteristics of the Planets and their Motion; Comparative Planetology; the Planetary Moons; Asteroids, Meteorites and Comets; Life on Earth and Search for Life in the Solar System.

Prerequisites: None.

General Education Learning Outcomes: This course satisfies the university general education requirement in Natural Science and Technology (NST) knowledge exploration area.
The learning outcomes for NST courses state that the student will demonstrate:

- Knowledge of major concepts from natural science or technology, including developing and testing of hypotheses; drawing conclusions; and reporting of findings through some laboratory experience or an effective substitute (Laboratory experiences are met by either a limited number of interactive experiences, collecting and interpreting raw data, or other effective experiences such as a virtual laboratory). Requires at least 3 laboratory experiences during the course.
- How to evaluate sources of information in science and technology.

In addition to the general-education learning outcomes, this course also includes the crosscutting capacity of Critical Thinking.

Course Goals and Objectives: Since time immemorial man has looked at the skies to find an answer to many questions, such as the meaning of life, how our lives are connected to the Sun, Moon, planets and stars… The mysteries of the sky have fascinated ancient philosophers, kings and religious leaders alike. But it is only in relatively recent times that Astronomy has emerged as an actual science.

The main goal of this course is to foster the appreciation of Astronomy as a science. Therefore, the course will include, besides an historical overview of the development of Astronomy in ancient civilizations, an introduction to the scientific method.

The course will also introduce basic concepts of mechanics and geology as an aid to the understanding of planetary motion, composition, and atmosphere.

The nature of this course is mostly descriptive; a minimal amount of mathematics will be utilized. To deepen the understanding of concepts, though, a number of tools will be used:

- **Web Tutorials** – the web tutorials are short online lessons that are meant to consolidate the student's understanding of main concepts. The student will have to answer a set of questions after each tutorial lesson.
- **Laboratories** – these include both qualitative and quantitative analysis of data and serve to reinforce the understanding of fundamental concepts and to gain an appreciation for the way that modern experiments are made by astronomers.
- **Online Quizzes** – on the Mastering Astronomy website, these include reading, visual and concept quizzes, and short tutorials.

Textbook: Bennett – The Cosmic Perspective: Solar System– Edition 8/e
packaged with Student Access Kit to Mastering Astronomy
Pearson Publishing – ISBN: 9780134564418 [Requested]

You may choose to purchase the printed book with Mastering:

- at the Campus bookstore – for $140
- online directly through Pearson's website – for $111
  www.mypearsonstore.com (Search the book by ISBN)

If you wish to purchase just the e-book with Mastering:

- go to the website listed below, click on *Register Now*, and choose to purchase the 6-month access – for $60
  www.masteringastronomy.com

Notice: *it is recommended that you purchase the complete package new. Used books have a used Access Code to Mastering Astronomy, Which cannot be reused. You would have to purchase a new Access Code online.*

Features: The textbook includes two important Student Supplements:

"*Mastering Astronomy Website*": featuring interactive tutorials, interactive figures and photos, mini documentaries, etc., and the electronic textbook.

http://www.masteringastronomy.com

"*Tutor Center*": provides one-to-one tutoring by qualified college instructors in the evenings and weekends via phone, fax, e-mail and the Internet.

http://www.aw-bc.com/tutorcenter

Study Tips: In order to test your understanding of the concepts embedded in the chapters and also to prepare for the exams, you should test yourself by going to the ***Study Area*** of ***MasteringAstronomy.com***

The ***Study Area*** tab is at the top-right of the screen. Once in there, ***choose the chapter*** from the scroll down menu at the top and click 'GO'.

As you scroll down the page, you will see ***Reading, Concept,*** and ***Visual Quizzes***. These serve as an excellent chapter review. These quizzes are not graded, and you may take them repeatedly – for example after you study the chapter and again just before the exam.

Also, review all the ***Review Questions*** and ***Test Your Understanding*** at the end of each chapter on the textbook. Notice that the ***e-book*** is also in the ***Study Area.***

Ideally, you could meet with your assigned group once a week for a couple of hours and work with them on this review material.

Lecture Notes: Lecture notes are available on Moddle. These can be used as a study-guide and are not intended to substitute the textbook.

Recorded Lectures: Power Point presentations of the lectures with voice over are available on Moodle for most chapters.

Online Quizzes: This homework consists of online Reading Questions and Tutorials for each chapter. These are intended to help the student familiarize with the concepts introduced by the course and to help them gauge their understanding of the material.

The quizzes are found on the **Mastering Astronomy.com** website.

Please see the attached sheet on *'How to Access the Online Quizzes'*.

No late Quizzes are accepted after one week from the due date.

For each late day there will be a 10% penalty.

The Online Quizzes are worth 10% of the final grade.

Chapter Questions: For each chapter one or two questions will be posted on Moodle. You are asked to work in groups of three and submit the answers by e-mail to the grader.

No late Answers are accepted after one week from the due date.

For each late day there will be a 10% penalty.

The Chapter Questions are worth 12.5% of the final grade.

Tutorials: These are an excellent self-study tool for deepening the understanding of main concepts. There is a total of twelve tutorials.

Tutorials are found on the **MasteringAstronomy.com** website.

Please see the attached sheet on *'How to Access the Self-Guided Tutorials'*.

I will post on Moodle a set of questions for each tutorial. You are asked to work in groups of three and submit the answers by e-mail to the grader.

No late Tutorials are accepted after one week from the due date.

For each late day there will be a 10% penalty.

The Tutorials are worth 12.5% of the final grade.

Laboratories: These activities are intended to develop critical thinking, learn how to analyze data, and test models. They include both qualitative and quantitative analysis of data and serve to reinforce the understanding of fundamental concepts in astronomy.

- Lab 1: The Moon
- Lab 2: The Solar System
- Lab 3: Kepler's Third Law

The write-up of these labs is available online on Moodle**.** The reports must be submitted by e-mail to my Teaching Assistant for grading.
Laboratories are intended for individual work – this is not group work.

No late Laboratory is accepted after one week from the due date.

For each late day there will be a 10% penalty.

Please notice: this General Education course requires laboratory experiences.

You will not be able to pass the course unless you turn-in all three labs.

The Laboratories are worth 20% of the final grade.

Online Exams: There will be three online exams in the form of multiple-choice questions.
These will take place on the **MasteringAstronomy.com** website.
These exams will have the duration of 1 hour and may be taken any time on the day on the specified exam date:

- Exam # 1 Online (Chapters 1, 2, 3, 4)
- Exam # 2 Online (Chapters 5, 6, 7, 8)
- Exam # 3 Online (Chapters 9, 10, 11, 12)

Please notice: you will not be able to pass the course unless you take all three exams

The Online Exams are worth 15% each, for a total of 45% of the final grade.

Gradebook: All grades will be posted on Moodle's Gradebook.
The Gradebook will be updated regularly as new grades become available.

Final grade: The final grade will be calculated on the basis of the following percentages:

*** Online Quizzes:**	**10.0%**
*** Chapter Questions**	**12.5%**
*** Tutorials:**	**12.5%**
*** Sky-Gazer Activities**	**20.0%**
*** Online Exams**	**45.0%**

Grading scale:

A	**96-100**
A-	**90-95**
B+	**85-89**
B	**80-84**
B-	**75-79**
C+	**70-74**
C	**65-69**
C-	**60-64**
D+	**55-59**
D	**50-54**
F	**< 50**

Things to do during the first week:

Syllabus Quiz: during the first week of the course, you will have to take this simple quiz, to be sure that you understand what you have to do for the course. A nominal grade of 1 point is assigned to this Quiz (for participation).

Are you ready for Online Learning Quiz:

during the first week of the course you are also required to take this short quiz which will help you understand whether you are fit for an online course or not. Kindly email the results to Dr. Castoldi.

Getting to Know each Other Forum:

This Forum is meant to help all of us to get to know each other. It may also initiate conversation and friendship with other students in the course. Please answer the questions and share information about yourself with all of us.

Important Note from the Instructor:

Online courses have numerous advantages, including flexibility for those with a busy schedule. On the other hand, I wish to bring to your attention that **not everybody is fit for an online course**. Remember that to succeed in an online course,

- You must be able to **work independently.**
- You must feel quite **comfortable** working **with computers**.
- You must be **self-motivated** and **disciplined** in order to access all assignments in a timely manner, actively participate in discussions with group members, and study the material in the textbook in a timely manner.
- You must be able to **follow directions**. Most online activities are announced with written directions. It's important that you understand what the instructor requires.
- You must be **organized**. For example, create a folder on your computer for the class. Within it create other folders for each of the class activities.

Last, but not least, **never** wait until the last minute to work at an assignment.
Working with computers means that the internet may be down when we least expect it, making us miss an important deadline. To prevent this, you must work ahead of deadlines.

Add/Drops

The University's add/drop policy will be explicitly followed. It is the student's responsibility to be aware of the university deadline dates for dropping courses.

Reasonable Accommodations

Accessibility and Accommodations: it is the University's goal that learning experiences be as accessible as possible. Students with disabilities who have questions about course accessibility are encouraged to contact the instructor immediately. The Office of Disability and Support Services (DSS) is available to help. The DSS office is located in Room 103A North Foundation Hall.
For more information, call 248-370-3266 or visit **https://www.oakland.edu/dss**

Policy on Academic Misconduct

The University's regulations that relate to academic misconduct will be fully enforced. Any student suspected of cheating and/or plagiarism will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of academic misconduct in this course may receive a course grade of F, in addition to any penalty assigned by the Academic Conduct Committee. Students found guilty of academic misconduct by the Academic Conduct Committee may face suspension or permanent dismissal. The full policy on academic misconduct can be found in the General Information section of the Undergraduate Catalog.

Excused Absence Policy

The University excused absence policy applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee.
For the excused absence policy, see:
https://www.oakland.edu/provost/policies-and-procedures/

Student Preferred Name/Pronoun Policy

Course rosters are typically provided to the instructor with the student's legal names. If you do not identify with the name that is listed with the Registrar's office, please notify me. I will gladly honor your request to address you by an alternate name or gender pronoun. For more information on indicating a preferred first name on university records, please visit:
https://www.oakland.edu/uts/common-good-core-resources/name-services/

Communication:

Instructor → Student:

Communications from the instructor will happen via **News Forums** in **Moodle** (forwarded by Moodle to your Oakland e-mail account.)

The student is expected to be familiar with Moodle. The e-Learning department offers introductory sessions at the beginning of each term.

Go to:

https://moodle.oakland.edu

Click on '*Students*' at the top and choose '*Moodle Orientation*'

- Each student is expected to login at least twice a week on Moodle and check the e-mail regularly
- A Weekly format will be used in Moodle, so that guidelines for the homework and all other activities will be posted week by week.

  You will have to scroll down the Moodle page to check each week of the course.

Student → Instructor:

Contacts with the instructor will happen primarily through **e-mail** at

castoldi@oakland.edu

An example of subject of your e-mail is shown below:

e.g. ***'Phy 1040 – Your Lastname – Questions on Tutorial 1'***

I will read my e-mail at least twice a day.

Student → Student:

Contacts among students may happen in a number of ways:

- '***Student Chat Room'*** Forum – setup on Moodle for students to initiate a chat
- '***Getting to know each other***' Forum – setup on Moodle so that each students can share some basic information about himself/herself with others and the instructor. Participation in this forum is ***mandatory***.

Virtual Office Hours:

The student-instructor communication can happen also via Skype video conferencing. Upon request we can setup a **phone call** or **Skype** meeting time to solve group issues.

For **TECHNICAL ISSUES**, please contact:

Moodle:

Read the documents on the e-Learning & Instructional Support (e-LIS) website.

In particular, the '***Welcome to the Online Student Orientation***':

http://www2.oakland.edu/elis/SO_index.cfm

If this doesn't help, contact the e-LIS at **248-370-4566**

You may also submit a Help Request Form to e-LIS:

http://www2.oakland.edu/elis/help.cfm?LMS=2

Online Quizzes:

Go to the **www.masteringastronomy.com** website

Under 'Student', click on 'Support'

- You may read answers to Top Questions,
- Read the Student User Guide, or
- Ask questions

HOW TO ACCESS THE ONLINE QUIZZES

The textbook is packaged with the ***Student Access Kit to Mastering Astronomy.***
If you purchased a used textbook, you may choose to purchase the Access Kit online at:

www.MasteringAstronomy.com

Day One: Register for the Class

Go to the Mastering Astronomy website: **www.masteringastronomy.com**
Under the **Student** tab, click on **Support** and download the **Student User Guide**.

- Back to the Home page, click on **Register Now**
- Watch the short videos on *How do I register?* and *Is my computer setup for Mastering?*
- Do you have the Student Access Code from the Student Access Kit inside your textbook? Click **Yes or No** (in which case you may purchase it online)
- Do you have a Pearson Education Account? Select **No**, then
    - create your ***Login Name*** (last name, first name please) and ***Password***
    - enter the ***Mastering Astronomy Access Code*** (inside the Student Access Kit)
    - enter your personal information
    - choose the *school location* (Zip: 48309)
    - click on '**Next**': a 'Confirmation & Summary' page will appear.
- Click on '**Log In Now**' – Now you can Login as a Returning User.
    - and the ***Course ID***: **P1040F18CASTOLDI** (Note that 1040 & 18 are numbers!)

Please Notice: If you have a Pearson account already, please check the information posted on the following pages.

To access the Homework:

Go to the Mastering Astronomy website: **www.masteringastronomy.com**

Step 1: Login
Step 2: Click on **Assignment List**
Step 3: Choose the homework chapter, e.g. 'Chapter 1'
Step 4: Answer all the questions
Step 5: Submit for grading

Please Note:

If you do not enter the Class ID, your grade will not appear on my Gradebook!

MasteringAstronomy®

Student Registration

In this course you will be using MasteringAstronomy, an online tutorial and homework program.

Note: If you have joined a MasteringAstronomy course before with the same textbook, save time by following the guide for joining another course found at www.MasteringAstronomy.com *>Tours & Training> Getting Started> Students*

What You Need:

- ✓ **A valid email address**
- ✓ **A student access code**
  (Comes in the Student Access Code Card/Kit that may have been packaged with your new textbook or that may be available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringastronomy.com .) **DO NOT THROW AWAY the card that came in your textbook!**
- ✓ **Your School Zip Code:**_____
- ✓ **A Course ID:** _____ (Provided by your instructor.)

1. Register

- Go to www.masteringastronomy.com and click **Students** under **Register**.
- To register using the student access code inside the MasteringAstronomy Student Access Code Card/Kit, select **Yes, I have an access code**. Click **Continue**

  –OR– *Purchase access online*: Select **No, I need to purchase access online now**. Select your textbook, whether you want access to the eText, and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. (The purchase path includes registration, but the process is a bit different from the steps printed here.) **Be sure to choose the RIGHT version of your textbook!**

- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under "Do you have a Pearson Education account?" (**Yes**, **No**, or **Not Sure**)
- Continue to give the requested information until you complete the process. The **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Sign In Now** or return to www.masteringastronomy.com later.

2. Sign In

- Go to www.masteringastronomy.com .
- Enter your Login Name and Password that you specified during registration and click **Sign In**.

3. Join Your Instructor's Online Course and/or Open Self-Study Resources

When you first Sign In, you'll be asked to do one or more of the following:

- **Join a Course** by entering the **MasteringAstronomy Course ID** provided by your instructor. If you don't have a Course ID now, you can return to join the MasteringAstronomy course later. When you join a course, you may also be asked for a Student ID (if your professor requested this, follow the on-screen instructions).
- If you do not have a Course ID, you can **Explore the Study Area** or **Launch Your eText**, if these resources are available for your textbook.

For a video demo from your Smart Phone, scan here:	**For additional support go to:** http://www.masteringastronomy.com/site/support/faq-students.html • System Requirements/Browser suggestions • Answers to Frequently Asked Questions • Registration Tips & Tricks video • Additional contact information for Customer Support, including Live Chat

How to Join Another MasteringAstronomy Course

To join another MasteringAstronomy® course, see which column below applies to you. You can be in up to four MasteringAstronomy courses, whether at the same time or one after another.

If you CAN STILL LOG IN to a MasteringAstronomy course **-AND-** **Your next MasteringAstronomy course uses the same textbook (including its edition) or the same resource, such as Virtual Lab, as the original course:**	**If you CANNOT LOG IN to a MasteringAstronomy course anymore** **-OR-** **If your next MasteringAstronomy course uses a different textbook or different resource, such as Virtual Lab, than your previous course:**
Follow the instructions below. You don't need to register again (i.e., redeem an access code or buy access online). *Note:* Your instructor controls the end date for each MasteringAstronomy course. You can no longer log in to a course after its end date.	**Follow the instructions in the student guide for getting started** (available from www.MasteringAstronomy.com > Tours & Training > Getting Started). You will need to redeem an access code or buy access online. *Tip:* To help manage your Pearson resources, use the same Pearson user account (as identified by your Login Name and Password) for all of your Pearson products.

Log in to a MasteringAstronomy course

1. Go to www.MasteringAstronomy.com.
2. Enter your Login Name and Password and click **Log In**.

Join another MasteringAstronomy course and open available self-study resources

1. Click **My Courses** in the upper left.
2. Choose **Join Another Course**.
3. Enter the Course ID and click **Continue**.
   - *Don't have the Course ID yet?* Get this information from your instructor.
   - *If the Course ID you entered applies to a different book or another resource for which you don't have access yet:* You will be asked to either redeem an access code or buy access online. Follow the on-screen instructions.
4. If asked, enter your Student ID according to the instructions provided and click **Continue**.
   - *If you want to consult with your instructor first:*
     You can add your Student ID later by clicking your name link in the upper right.

You should see the Course Home page of the additional course. From now on, logging in will take you to the Course Home page of the MasteringAstronomy course you last worked in.

- *To switch your view among MasteringAstronomy courses:*
  My Courses > **Switch to a Different Course** menu.
- *To check out self-study resources:* Click **eText** and/or **Study Area**, as available.

Support

Go to the Support area of www.MasteringAstronomy.com, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Registration Tips & Tricks video

Contact information for Support, including Live Chat

HOW TO ACCESS THE SELF-GUIDED TUTORIALS

- Login under **www.masteringastromony.com**
- Click on '***Study Area***' at the top-right
- Click on '***Self-Guided Tutorials***' on the left side.
- A list of Tutorial activities will be prompted.
- Click on the Tutorial assigned for the given week.

Assigned Tutorials

– Scale of the Universe

– Seasons

– Eclipses

– Phases of the Moon

– Motion and Gravity

– Energy

– Orbits and Kepler's Laws

– Light and Spectroscopy

– Doppler Shift

– Formation of the Solar System

– Shaping Planetary Surfaces

– Surface Temperature of Terrestrial Planets

PHY 1040 – WEEKLY SCHEDULE – FALL 2018

Week 1 – September 5 – 11

Chapter 1: Our Place in the Universe

Sept 11 – *Syllabus Quiz*
Are you ready for Online Learning Quiz
Getting to Know Each Other Forum

Week 2 – September 12 – 18

Chapter 2: Discovering the Universe

Sept 14 – Ch 1 Online Quizzes due (individually)

Week 3 – September 19 – 25

Chapter 3: The Science of Astronomy

Sept 21 – Ch 2 Online Quizzes due (individually)
Ch 2 Chapter Questions due (group)
Tutorial 1 due: The Scale of the Universe (group)

Week 4 – September 26 – October 2

Chapter 4: Motion, Energy and Gravity

Sept 28 – Ch 3 Online Quizzes due
Ch 3 Chapter Questions due
Tutorial 2 due: Seasons

Week 5 – October 3 – 9

Chapter 5: Light

Oct 5 – Ch 4 Online Quizzes due
Ch 4 Chapter Questions due
Tutorial 3 due: Eclipses

Online Exam # 1: October 6 – Chapters 1, 2, 3, 4

The exam is one hour long and is available all day on Saturday through noon on Sunday. Once you start, you have one hour to complete it.

Week 6 – October 10 – 16

Chapter 6: Telescopes

Oct 12 – Ch 5 Online Quizzes due
Ch 5 Chapter Questions due
Tutorial 4 due: Phases of the Moon

Week 7 – October 17 – 23

Chapter 7: Our planetary System

Oct 19 – Ch 6 Online Quizzes due
Ch 6 Chapter Questions due
Tutorial 5 due: Motion and Gravity
Lab 1 due: The Moon (individually)

Week 8 – October 24 – 30

Chapter 8: Formation of the Solar System

Oct 26 – Ch 7 Online Quizzes due
Ch 7 Chapter Questions due
Tutorial 6 due: Energy
Peer Evaluation Rubric

Week 9 – Oct. 31 – Nov. 6

Chapter 9: Planetary Geology – Terrestrial Planets – through sect. 9.3 included

Nov 2 – Ch 8 Online Quizzes due
Ch 8 Chapter Questions due
Tutorial 7 due: Orbits and Kepler's Laws

Online Exam # 2: November 3 – Chapters 5, 6, 7, 8

The exam is one hour long and is available all day on Saturday through noon on Sunday. Once you start, you have one hour to complete it.

Week 10 – November 7 – 13

Chapter 9: Planetary Geology – Terrestrial Planets – finish

Nov 9 – Tutorial 8 due: Light and Spectroscopy
Lab 2 due: The Solar System (individually)

Week 11 – November 14 – 20

Chapter 10: Planetary Atmospheres

Nov 16 – Ch 9 Online Quizzes due
Ch 9 Chapter Questions due
Tutorial 9 due: Doppler Shift

Week 12 – November 21 – 27

Chapter 11: Jovian Planetary Systems

Nov 26 – Ch 10 Online Quizzes due
Ch 10 Chapter Questions due
Tutorial 10 due: Formation of the Solar Sys

Week 13 – Nov. 28 – Dec. 4

Chapter 12: Asteroids, Comets…

Nov 30 – Ch 11 Online Quizzes due
Ch 11 Chapter Questions due
Tutorial 11 due: Shaping Planetary Surfaces
Lab 3 due: Kepler's Third Law (individually)

Week 14 – December 5 – 11

Review

Dec 7 – Ch 12 Online Quizzes due
Ch 12 Chapter Questions due
Tutorial 12 due: Surface Temperature of Terr. Planets

Online Exam # 3: December 8 – Chapters 9, 10, 11, 12

The exam is one hour long and is available all day on Saturday through noon on Monday. Once you start, you have one hour to complete it.