

Campus/Center: Downtown Campus

Room Number: CD Child Development

Course Number: AST 105IN **Course Title:** Life in the Universe

CRN: 10849

Course Description: The science of astronomy focusing on the formation of the universe, the solar system, and life. Includes Earth's location in space and time, nature of life, light and the spectrum, origin of the universe, galaxies and stars, origin of the solar system, planetary atmospheres, origin of life on Earth, life on other solar system planets, and life around other stars. Also includes observations, experiments, image analysis, scientific and photogeology laboratory exercise, group telescopic observation projects, and personal observation projects.

Information: IN is the integrated version of the course with the lecture and lab taught simultaneously.

Course Prerequisites: MAT 086 with a grade of C or better, or placement into MAT 092, or completion of Module 22 in MAT 089.

Course Co-requisites: None

Required Textbook(s):

"Introductory Astronomy: Lecture Tutorials Workbook" Edition: 3rd,
Author – Prather

"Life in the Universe" Edition: 3rd, Author - Bennett

Other Course Materials:

MyPima.pima.edu – MyPima is a course tool used as means of communication and/or for accepting course work. Your instructor will guide you in how it may be used in your course. Through MyPima you can also register and pay for classes, check your financial aid, access your student email, view your schedule, and read college-wide announcements.

MyPima also provides access to your online courses by linking to D2L, the College online learning system. You will use D2L to access your online course material, submit assignments, access grades and communicate with your instructors and classmates.

Instructor: Dr. Dennis Just

Office Location: ST-237

Office Hours: Tues 2pm-4pm; Thurs 2pm-4pm

I will also respond to any emails within 24 hours.

Instructor Phone: 520-206-7151

Instructor Email: djust@pima.edu

Technical Support Phone:

Supervisor Phone:

Start Date: Aug 26th, 2015

End Date: Dec 20th, 2015

Website: <http://dennisjust.weebly.com/ast-105-mw-10849.html>

Class Meeting Days: Monday and Wednesday

Class Meeting Time: 9:10am to 11:50am

Student Withdrawal Deadline: Nov 12th

Final Exam or Final Activity Date: Dec 9th

Welcome to Astronomy 105!

Student Learning Outcomes

Upon successful completion of the course, the student will be able to:

1. Discuss how astronomical observations contributed to the scientific revolution of the 17th century and explain the evidence for a heliocentric model for our solar system.
2. Describe current theories of planet formation and relate these to the present-day structure of our own solar system.
3. Predict orbital parameters for gravitating systems by applying Kepler's laws of planetary motion and Newton's laws of motion and Universal Gravitation.
4. Define habitability of a planet and apply astronomical concepts and techniques to the search for extrasolar planets and extraterrestrial life.
5. Identify the main evolutionary stages of a star's life on an HR diagram and describe the role of massive stars in the synthesis of heavy elements present on Earth today.

Academic Integrity

All PCC students are considered to be responsible individuals and are accountable for their own behavior. The College expects students to obey local, state and federal laws, and to follow the Student Code of Conduct. PCC has zero tolerance toward student acts of plagiarism. Plagiarism, as defined in the Student Code of Conduct, "includes representing the work of another person as one's own, including information downloaded from the Internet. The use of another person's words, ideas, or information without proper acknowledgment also constitutes plagiarism." The Student Code of Conduct is specific with regard to the academic ethics sanctions for plagiarism: www.pima.edu/studentserv/studentcode.

Student Official Withdrawal from Class

A student may withdraw him/herself from the class by the Student Withdrawal Deadline listed above and a grade of 'W' will be recorded on the transcript. It is strongly recommended that you speak with faculty and a financial aid staff member before deciding to withdraw. Visit <http://www.pima.edu/paying-for-school/financial-aid/managing-award/dropping-or-withdrawing.html> to determine how dropping or withdrawing from class may have a negative impact your Standards of Academic Progress, financial aid, and/or scholarships. Review the Standards of Academic Progress at <http://www.pima.edu/new-students/register-for-classes/academic-progress.html> to understand the criteria required for and consequences of official withdrawals.

Financial Aid, Veteran's Benefit, and other student Benefits

Your financial aid, veteran's, and other benefits from PCC and external agencies are contingent on your participation, performance, and compliance with guidelines set by the College the benefit providers. Please see a student financial aid advisor, veteran's benefits advisor, or other agency advisor for information on your benefits, your status with those benefits, and other items of which you should be aware.

Attendance Requirements

Throughout the term, students must substantively participate in such a way as to ensure successful completion of the course by the end of the term (i.e. regularly submit assignments and continue to interact with other students and the course instructor). Students must complete at least one academic task per week/7-day period (including during the first 7 days of the course) that will serve as documented active participation. Faculty have the responsibility of noting whether the student is present or not using Attendance Tracker. **Students who do not actively participate in the class by September 8th will be dropped from the class.** This may result in adverse financial consequences such as a change in financial aid, veterans' benefits, and/or other benefits related to being a student. Examples of active participation include (but are not limited to):

attending class during each scheduled face-to-face session

participating in a class-related activity each week/7-day period such as attending a faculty-organized study session, working on course content in a supervised center, or meeting with the instructor face-to-face or online

completing a class-related task such as an interactive tutorial or computer-assisted instructional activity

completing an assessment during each week/7-day period; the assessment might address content that should have been learned to date or might be in the form of a progress self-assessment**

posting academically-related communications regarding course content

academically-participating in a discussion

signing in via an Accutrack-type system for the on-site component in an on-campus (and possibly self-paced) class

note that simply logging on to D2L or other computer-based systems does not meet the federal guidelines for active participation.

American Disabilities Act (ADA) Policy Statement

PCC is committed to providing accommodations for qualified individuals with disabilities in a timely and effective manner. To request a reasonable accommodation, students must be registered with the campus Access and Disability Resources (ADR) office. Accommodations will be made based on eligibility determined by Access and Disability Resources. Services can be requested at any time during the semester. Requesting services well in advance will help to ensure that resources are available when needed. Please contact the ADR office at 206-6688 or ADRHelp@pima.edu.

General Campus Conduct

Visitors are not allowed in class sessions or on field trips.

Possession of drugs, alcohol or firearms are not allowed on college property per College policy.

Smoking, e-cigarettes and soliciting are not allowed in classrooms. Smoking is only permitted in designated smoking areas.

Any item that is used in a way that is disruptive to the classroom is not allowed. Such items may include cell phones, pagers and any other electronic devices that distract students.

Animals are not allowed in the classroom as per SPG-3603/BA. Visit <https://www.pima.edu/about-pima/policies/standard-practice-guides/SPG-3603-BA.html>

Students creating disturbances that interfere with the conduct of the class or the learning of others, violates the Student Code of Conduct. Students will be referred to an administrator.

Disruptive behavior will not be tolerated and can be cause for being dropped from the class. Disruptive behavior disrupts the learning process. Examples of disruptive behavior can be inappropriate talking, arriving late or leaving early, sleeping in class, etc.

Student Resources

Learning Centers (tutoring): At Downtown Campus, call 520-206-7311

Library: At Downtown Campus, call 520-206-7267.

Testing and Assessment Centers: At Downtown Campus, call 520-206-7254.

Computer Commons (Academic Computing): At Downtown Campus, call 520-206-7311.

Course Grade Determination

Attendance/Participation – 25%

Quizzes – 10%

Lecture Tutorials – 10%

Research Report – 10%

Observing Labs – 15%

Midterm Exam – 15%

Final Exam – 15%

Course Policies and Procedures

Participation/Attendance – This component of your grade consists of two parts, *Participation* and *Attendance*.

Your *Participation* grade will be determined by me (at my discretion) based on your actively engaging in the class - for example by asking/answering questions, completing in-class assignments, etc.

Your *Attendance* grade will be determined by your presence in class. If you are unable to attend a class (i.e., an excused absence), you may still receive credit towards your *Attendance* grade **IF**:

- (1) you give me notice before 10pm on the previous day, and
- (2) you complete a 1-page report within one week (7 days) of the missed class. I will determine the report based on the material that we covered in the missed class.

You can only do this a total of **3 times** – after that you will be unable to get credit towards your *Attendance* grade for a missed class.

Quizzes – There will be multiple types of quizzes in this course.

(1) *Review Quizzes* – every Wednesday we will have a short, 10 question quiz on the previous week's material. These are intended to be a basic review of the previous week's topic, so studying explicitly should not be necessary. There will be 12 of these if scheduling works out, in which case the two lowest scores will be dropped. These best 10 scores that remain will make up half of your quiz grade, i.e. 10% of your final grade.

(2) *Scratch-off Quizzes* – these will be randomly peppered into class, where you will first take a short, written multiple-choice quiz individually. Afterwards, you will break up into groups and take the same quiz as a group using scratch-off cards. Your scores (as a group) on these quizzes will translate into the remaining half of your quiz grade, in other words 10% of your total grade.

Extra Credit – Furthermore, all members of the group with the best score (i.e., the least number of scratches to get all the correct answers) at the end will receive 1 point added to their final grade. Two-way ties will give 0.5 points to each winning group, three-way ties 0.33 points, and so on.

(3) *Concept quizzes* – these will be roughly every class, towards the middle or end of the period, and will review what we've gone over already, as well as test your conceptual understanding of the topic. **These won't count towards your quiz grade, but will factor into your *Participation* grade.**

Lecture Tutorials – We will do many of the tutorials from the Prather et al. "Introductory Astronomy: Lecture Tutorials Workbook."

These will be done in class, with the possibility to finish at home if not completed during the class period, and will count towards 10% of your final grade.

Research Report – This will be a 5-page (double-spaced, 12-point font) report on a specific aspect of the Solar System. The topics will be listed in class at some point during the semester, and you will be free to choose your topic from this list. These topics will be aspects of the Solar System that we will not otherwise learn about in significant detail; the goal of this report is for you to gain extra understanding on a specific topic in addition to what we cover in class. You'll need to cite your sources appropriately. Feel free to ask me any specific questions about the report as they arise.

Observing Labs – There will be three types of labs.

(1) *At-home labs* – These are shorter labs that you will complete at home. There will be 3 of these, and they involve observing astronomical phenomena such as the night sky, setting Sun, and phases of the Moon.

(2) *In-class labs* – These are virtual labs we will work on in class using laptops. There also may be a Solar Observing lab

(3) *Observatory lab* – This is a lab that will take place at the East Campus Observatory. It will involve telescopes and night sky observations. Details will be given in class. If you are unable to make it to the Observatory, an alternative assignment will be given.

Midterm and Final Exam – There will be a midterm and a final exam, together accounting for 30% of your total grade. The majority of questions will be multiple-choice.

Course Schedule

Week 1

Aug 26 W Intro, Syllabus, The Night Sky

Week 2

Aug 31 M The Seasons

Sep 2 W The Phases of the Moon

Week 3

Sep 7 M NO CLASS LABOR DAY

Sep 9 W Spectra, Light, and Matter

Week 4

Sep 14 M Gravity + Orbits

Sep 16 W Life on Earth

Week 5

Sep 21 M Life on Earth (cont.)

Sep 23 W Metabolism

<u>Week 6</u>		
Sep 28	M	Evolution
Sep 30	W	Abiogenesis
<u>Week 7</u>		
Oct 5	M	The Habitability of Earth
Oct 7	W	Earth's History and Structure
<u>Week 8</u>		
Oct 12	M	Earth's History and Structure (cont.)
Oct 14	W	MIDTERM
<u>Week 9</u>		
Oct 19	M	A Biological Tour of the S.S.
Oct 21	W	A Biological Tour of the S.S. (cont.)
<u>Week 10</u>		
Oct 26	M	Life on Mars
Oct 28	W	Life on Mars (cont.)
<u>Week 11</u>		
Nov 2	M	Life on Mars (cont.)
Nov 4	W	Life on Mars (cont.)
<u>Week 12</u>		
Nov 9	M	Jupiter's Moons and Prospects for Life
Nov 11	W	NO CLASS VETERANS DAY
<u>Week 13</u>		
Nov 16	M	Life on Titan
Nov 18	W	Life on other Jovian Moons
<u>Week 14</u>		
Nov 23	M	Habitability Zones
Nov 25	W	Life Outside the Solar System
<u>Week 15</u>		
Nov 30	M	The Search for Extraterrestrial Intelligence
Dec 2	W	Interstellar Travel and the Fermi Paradox
<u>Week 16</u>		
Dec 7	M	Review for Final
Dec 9	W	FINAL EXAM

Additional Information

FERPA Statement – Subject to certain exceptions set forth in the Federal Family Education Rights and Privacy Act (FERPA) of 1974, Pima Community College will not provide personally identifiable student information (including but not limited to grades, billing, tuition and fees assessments, financial aid and other student records) to third parties absent the student's consent. Third parties include parents, spouses, siblings, and third party sponsors. You (the student) may grant Pima Community College permission to release certain information to a third party by submitting the FERPA Release form: <https://pima.edu/current-students/code-of-conduct/ferpa/index.html>. Ask a staff member for a copy of the form BEFORE you arrive with a third party.

Mandatory Reporting – Arizona's Mandatory Reporting Law (A.R.S. 13-3620): Pursuant to Arizona law (A.R.S. §13-3620), College personnel, including faculty, staff, and administrators, who learn in the course and scope of their employment that minor (defines as under 18 years of age) has been the victim of physical or sexual abuse, are required to report this information immediately to law enforcement.

Arizona's Mandatory Reporting of Sexual Violence and/or Sexual Offenses (A.R.S. 13-14xx) Pursuant to Arizona law (A.R.S. §13-14xx) and Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistic Act: 34 CFR Part 668:), College personnel, including faculty, staff, and administrators, who learn in the course and scope of their employment that an individual has been a victim of sexual violence, or is informed about an alleged sexual offence shall as soon as possible, contact the Department of Public Safety.

Title IX makes it clear that violence and harassment based on sex and gender are Civil Rights offenses subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

Dr. Karrie Mitchell, AVC Student Services, Title IX Coordinator, 520-206-4973, kdmitchell@pima.edu.

Advising and Counseling Services, (520) 206-7260, or you send an email by filling out the form at <https://www.pima.edu/current-students/advising/contact-us.html>.

Department of Public Safety, Downtown Campus, 520-206-7087.

Southern Arizona Center Against Sexual Assault (SACASA), 24-hr crisis line, 520-327-7273 or 800-400-1001.

Electronic Usage Policy – Please set your phone to vibrate or turn it off, and do not answer it in the classroom.

www.pima.edu

This syllabus is a guide for the course and is subject to change at the discretion of the instructor with notice to students.