# Cover Sheet: Request 14138

### AST 2XXX – Introduction to Python for Physical Sciences

**Info**

| | |
|---|---|
| Process | Course\|New\|Ugrad/Pro |
| Status | Pending at PV - University Curriculum Committee (UCC) |
| Submitter | Paul Torrey paul.torrey@ufl.edu |
| Created | 8/20/2019 4:16:47 PM |
| Updated | 3/3/2021 8:54:24 AM |
| Description of request | This is a request for a new 2000 level course introducing student to the Python programming language for the Physical sciences. |

**Actions**

| Step | Status | Group | User | Comment | Updated |
|---|---|---|---|---|---|
| Department | Approved | CLAS - Astronomy 16060000 | Charles Telesco | | 8/21/2019 |
| No document changes | | | | | |
| College | Recycled | CLAS - College of Liberal Arts and Sciences | Joseph Spillane | The College Curriculum Committee recycles this request, with the following changes needed: 1) please revise course title to include Astronomy; 2) please revise course description to make more specific to the field of instruction; 3) please change referenced location of writing studio to Turlington Hall; 4) please add grading scale | 10/14/2019 |
| No document changes | | | | | |
| Department | Approved | CLAS - Astronomy 16060000 | Elizabeth Lada | | 7/23/2020 |
| No document changes | | | | | |
| College | Recycled | CLAS - College of Liberal Arts and Sciences | Joseph Spillane | | 7/25/2020 |
| No document changes | | | | | |
| Department | Approved | CLAS - Astronomy 16060000 | Elizabeth Lada | | 3/2/2021 |
| Chemistry_Chair_Support.pdf<br>Geology_Chair_Support.pdf<br>Physics_Chair_Support.pdf<br>Submit_IntroPython_Syllabus_Torrey_2021.pdf | | | | | 2/15/2021<br>2/15/2021<br>3/2/2021<br>3/2/2021 |
| College | Approved | CLAS - College of Liberal Arts and Sciences | Joseph Spillane | | 3/3/2021 |
| No document changes | | | | | |
| University Curriculum Committee | Pending | PV - University Curriculum Committee (UCC) | | | 3/3/2021 |
| No document changes | | | | | |

| Step | Status | Group | User | Comment | Updated |
|---|---|---|---|---|---|
| Statewide Course Numbering System | | | | | |
| No document changes | | | | | |
| Office of the Registrar | | | | | |
| No document changes | | | | | |
| Student Academic Support System | | | | | |
| No document changes | | | | | |
| Catalog | | | | | |
| No document changes | | | | | |
| College Notified | | | | | |
| No document changes | | | | | |

# Course|New for request 14138

## Info

**Request:** AST 2XXX – Introduction to Python for Physical Sciences
**Description of request:** This is a request for a new 2000 level course introducing student to the Python programming language for the Physical sciences.
**Submitter:** Paul Torrey paul.torrey@ufl.edu
**Created:** 5/6/2019 1:53:37 PM
**Form version:** 1

## Responses

**Recommended Prefix**
*Enter the three letter code indicating placement of course within the discipline (e.g., POS, ATR, ENC). Note that for new course proposals, the State Common Numbering System (SCNS) may assign a different prefix.*

Response:
AST

**Course Level**
*Select the one digit code preceding the course number that indicates the course level at which the course is taught (e.g., 1=freshman, 2=sophomore, etc.).*

Response:
2

**Number**
*Enter the three digit code indicating the specific content of the course based on the SCNS taxonomy and course equivalency profiles. For new course requests, this may be XXX until SCNS assigns an appropriate number.*

Response:
XXX

**Category of Instruction**
*Indicate whether the course is introductory, intermediate or advanced. Introductory courses are those that require no prerequisites and are general in nature. Intermediate courses require some prior preparation in a related area. Advanced courses require specific competencies or knowledge relevant to the topic prior to enrollment.*

Response:
Introductory

*• 1000 and 2000 level = Introductory undergraduate*
*• 3000 level = Intermediate undergraduate*
*• 4000 level = Advanced undergraduate*
*• 5000 level = Introductory graduate*
*• 6000 level = Intermediate graduate*
*• 7000 level = Advanced graduate*

*4000/5000 and 4000/6000 levels = Joint undergraduate/graduate (these must be approved by the UCC and the Graduate Council)*

**Lab Code**
*Enter the lab code to indicate whether the course is lecture only (None), lab only (L), or a combined lecture and lab (C).*

Response:
None

**Course Title**
*Enter the title of the course as it should appear in the Academic Catalog.*

Response:
Introduction to Python for Physical Sciences

**Transcript Title**
*Enter the title that will appear in the transcript and the schedule of courses. Note that this must be limited to 21 characters (including spaces and punctuation).*

Response:
Intro to Python

**Degree Type**
*Select the type of degree program for which this course is intended.*

Response:
Baccalaureate

**Delivery Method(s)**
*Indicate all platforms through which the course is currently planned to be delivered.*

Response:
On-Campus

**Co-Listing**
*Will this course be jointly taught to undergraduate, graduate, and/or professional students?*

Response:
No

**Co-Listing Explanation**
*Please detail how coursework differs for undergraduate, graduate, and/or professional students. Additionally, please upload a copy of both the undergraduate and graduate syllabus to the request in .pdf format.*

Response:
Course is not Co-listed.

**Effective Term**
*Select the requested term that the course will first be offered. Selecting "Earliest" will allow the course to be active in the earliest term after SCNS approval. If a specific term and year are selected, this should reflect the department's best projection. Courses cannot be implemented retroactively, and therefore the actual effective term cannot be prior to SCNS approval, which must be obtained prior to the first day of classes for the effective term. SCNS approval typically requires 2 to 6 weeks after approval of the course at UF.*

Response:
Earliest Available

**Effective Year**
*Select the requested year that the course will first be offered. See preceding item for further information.*

Response:
Earliest Available

**Rotating Topic?**
*Select "Yes" if the course can have rotating (varying) topics.  These course titles can vary by topic in the Schedule of Courses.*

Response:
No

**Repeatable Credit?**
*Select "Yes" if the course may be repeated for credit. If the course will also have rotating topics, be sure to indicate this in the question above.*

Response:
No

**Amount of Credit**
*Select the number of credits awarded to the student upon successful completion, or select "Variable" if the course will be offered with variable credit and then indicate the minimum and maximum credits per section. Note that credit hours are regulated by Rule 6A-10.033, FAC. If you select "Variable" for the amount of credit, additional fields will appear in which to indicate the minimum and maximum number of total credits.*

Response:
4

**S/U Only?**
*Select "Yes" if all students should be graded as S/U in the course. Note that each course must be entered into the UF curriculum inventory as either letter-graded or S/U. A course may not have both options. However, letter-graded courses allow students to take the course S/U with instructor permission.*

Response:
No

**Contact Type**
*Select the best option to describe course contact type. This selection determines whether base hours or headcount hours will be used to determine the total contact hours per credit hour. Note that the headcount hour options are for courses that involve contact between the student and the professor on an individual basis.*

Response:
Regularly Scheduled

*• Regularly Scheduled [base hr]*
*• Thesis/Dissertation Supervision [1.0 headcount hr]*
*• Directed Individual Studies [0.5 headcount hr]*
*• Supervision of Student Interns [0.8 headcount hr]*
*• Supervision of Teaching/Research [0.5 headcount hr]*
*• Supervision of Cooperative Education [0.8 headcount hr]*

*Contact the Office of Institutional Planning and Research (352-392-0456) with questions regarding contact type.*

**Weekly Contact Hours**
*Indicate the number of hours instructors will have contact with students each week on average throughout the duration of the course.*

Response:
3

**Course Description**
*Provide a brief narrative description of the course content. This description will be published in the Academic Catalog and is limited to 50 words or fewer. See course description guidelines.*

Response:
Introduction to computational techniques for Physical Sciences with Python. Students learn syntax, capabilities, and foundations of Python and basic numerical methods to address physical problems with a computational approach. Course covers basics of dataset manipulation, algorithm development, and plotting.

**Prerequisites**
*Indicate all requirements that must be satisfied prior to enrollment in the course. Prerequisites will be automatically checked for each student attempting to register for the course. The prerequisite will be published in the Academic Catalog and must be formulated so that it can be enforced in the registration system. Please note that upper division courses (i.e., intermediate or advanced level of instruction) must have proper prerequisites to target the appropriate audience for the course.*

Response:
None

*Completing Prerequisites on UCC forms:*

*• Use "&" and "or" to conjoin multiple requirements; do not used commas, semicolons, etc.*
*• Use parentheses to specify groupings in multiple requirements.*
*• Specifying a course prerequisite (without specifying a grade) assumes the required passing grade is D-. In order to specify a different grade, include the grade in parentheses immediately after the course number. For example, "MAC 2311(B)" indicates that students are required to obtain a grade of B in Calculus I. MAC2311 by itself would only require a grade of D-.*
*• Specify all majors or minors included (if all majors in a college are acceptable the college code is sufficient).*
*• "Permission of department" is always an option so it should not be included in any prerequisite or co-requisite.*

*Example: A grade of C in HSC 3502, passing grades in HSC 3057 or HSC 4558, and major/minor in PHHP should be written as follows:*
*HSC 3502(C) & (HSC 3057 or HSC 4558) & (HP college or (HS or CMS or DSC or HP or RS minor))*

**Co-requisites**
*Indicate all requirements that must be taken concurrently with the course. Co-requisites are not checked by the registration system.*

Response:
None

**Rationale and Placement in Curriculum**
*Explain the rationale for offering the course and its place in the curriculum.*

Response:
Computer programming is critically important to a wide range of physical sciences. There is a very loud demand among students for a 2000 level course that would teach the basics of computer programming and numerical methods. This course would be both hands on and practical, with a focus teaching students how to effectively develop solutions to problems in a computational environment. This course will be an important class for all astronomy majors, and will enable students to carry out more advanced computational projects in higher level courses.

**Course Objectives**
*Describe the core knowledge and skills that student should derive from the course. The objectives should be both observable and measurable.*

Response:
- The successful student will employ Python to build basic computer programs to open, manipulate, and visualize physical datasets.

- The successful student will apply the learned numerical methods to build algorithms to draw physical conclusions from data and carry out physical simulations.

- The successful student will demonstrate a comprehensive knowledge of Python syntax and fundamentals

**Course Textbook(s) and/or Other Assigned Reading**
*Enter the title, author(s) and publication date of textbooks and/or readings that will be assigned.  Please provide specific examples to evaluate the course.*

Response:
A Student's Guide to Python for Physical Modeling, Kinder & Nelson (ISBN:9781400889426)

**Weekly Schedule of Topics**
*Provide a projected weekly schedule of topics. This should have sufficient detail to evaluate how the course would meet current curricular needs and the extent to which it overlaps with existing courses at UF.*

Response:
Week 1: Introduction to Linux/Unix, Python installation
Week 2: Practical Operations in Linux/Unix, Algorithmic thinking, & documentation access

Week 3: Python Syntax, variable naming, and importing modules
Week 4: Definition and usage of arrays, strings, loops, & conditional statements
Week 5: Implementing logic through basic algorithm development
Week 6: Importing/exporting data, basic visualization, & basics of plotting
Week 7: Importing/exporting data, basic visualization, & basics of plotting
Week 8: Advanced plotting techniques
Week 9: Advanced plotting techniques
Week 10: Defining functions & random numbers
Week 11: Basic simulation techniques
Week 12: Numerical discretization techniques
Week 13: Basics of Numerical Integration
Week 14: Image processing
Week 15: Animation

**Links and Policies**
*Consult the syllabus policy page for a list of required and recommended links to add to the syllabus. Please list the links and any additional policies that will be added to the course syllabus.*
*Please see: syllabus.ufl.edu for more information*

Response:
Honor Code:
UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honorcode/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class”
Evaluations:
Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

Students are strongly encouraged to give feedback at any point through the semester. Lets make this an instructive, helpful, positive class for everyone.

Disabilities:
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester

Learning Environment and Day to Day:
We will all be working closely together throughout the semester, and I expect that all students will contribute to a respectful, welcoming, and inclusive environment. This includes showing respect for all questions asked by members of the class.

Class Attendance and Make-Up Policy:
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Campus Resources:
Health and Wellness
U Matter, We Care

If you or a friend is in distress, please contact umatter@ufl.edu or (352) 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center
(352) 392-1575; https://counseling.ufl.edu/

Sexual Assault Recovery Services (SARS)
Student Health Care Center, (352) 392-1161.

University Police Department
(352) 392-1111 (or 9-1-1 for emergencies). http://www.police.ufl.edu/

Academic Resources

E-learning technical support
(352) 392-4357 (option 2); learning-support@ufl.edu; https://lss.at.ufl.edu/help.shtml

Career Connections Center, Reitz Union
(352) 392-1601. https://career.ufl.edu/

Library Support
http://cms.uflib.ufl.edu/ask
Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall
(352) 392-2010 or (352) 392-6420
General study skills and tutoring.
http://teachingcenter.ufl.edu/

Writing Studio, 302 Tigert Hall,
(352) 846-1138.
Help brainstorming, formatting, and writing papers.
http://writing.ufl.edu/writing-studio/

Student Complaints On-Campus
https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/

On-Line Students Complaints:
http://distance.ufl.edu/student-complaint-process/

**Grading Scheme**

*List the types of assessments, assignments and other activities that will be used to determine the course grade, and the percentage contribution from each. This list should have sufficient detail to evaluate the course rigor and grade integrity. Include details about the grading rubric and percentage breakdowns for determining grades.*

Response:
Grades will be assigned according to:

Homework 75%
Projects

25%

Homeworks due every week, with the exception of weeks 5, 10, and 15 (when projects are due). Homeworks will consist of comprehension questions and mini-coding problems. Comprehension questions will require written answers explaining a coding concept, schematically depicting an algorithm to solve a problem, identifying problematic code, and similar. Each comprehension question will have a clear rubric. Mini-coding problems will require students to submit electronic code that successfully performs a certain task. Examples include fitting a specified function to a provided dataset, solving for equilibrium configurations of material given a specified set of physical equations of motion, visualizing a complex dataset in order to draw a conclusion, and

similar. Each mini-coding question will be graded based on a specified rubric provided with the question. It's expected that homeworks will be roughly balanced 50% comprehension, 50% coding, with a stronger emphasis on comprehension at the beginning of the semester, and a stronger emphasis on coding by the end.

Additionally, there will be three (3) course projects covering (i) program design, (ii) data-analysis, and (iii) simulation techniques. These projects will be assigned on weeks 1, 6, and 11, and be due weeks 5, 10, and 15 (respectively). Each project will involve the student solving one 'big problem' and submitting their code for review. Successful projects will not only successfully complete the assigned task, but will be well documented/commented and follow proper coding practices.

Unexcused late homework and projects will be accepted with 20% grade loss per day, for maximum of 5 days late. Exceptions include medical emergencies or other extenuating circumstances.

UF grade policies may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

**Instructor(s)**
*Enter the name of the planned instructor or instructors, or "to be determined" if instructors are not yet identified.*

Response:
Paul Torrey

**From:** **Lada,Elizabeth Anne** elada@astro.ufl.edu
**Subject:** Fwd: Support for new python course
**Date:** February 12, 2021 at 1:14 PM
**To:** Torrey,Paul paul.torrey@ufl.edu

EL

Begin forwarded message:

**From:** "Chair, Dept. of Chemistry, Univ of Florida" <chair@chem.ufl.edu>
**Subject:** **RE: Support for new python course**
**Date:** February 12, 2021 at 1:13:23 PM EST
**To:** "Roitberg,Adrian E" <roitberg@ufl.edu>, "Lada,Elizabeth Anne" <elada@astro.ufl.edu>, "Chair, Dept. of Chemistry, Univ of Florida" <chair@chem.ufl.edu>

Hi all:

I agree. If you need my endorsement for the course, you have it.

Best,
Lisa


Lisa McElwee-White
Colonel Allan R. and Margaret G. Crow Professor
Chair, Department of Chemistry
Affiliate Professor of Chemical Engineering
University of Florida
Gainesville, FL 32611-7200
Phone: (352) 392-5266
https://lmwhite.chem.ufl.edu/


**From:** Roitberg,Adrian E <roitberg@ufl.edu>
**Sent:** Friday, February 12, 2021 10:00 AM
**To:** Lada,Elizabeth Anne <elada@astro.ufl.edu>; Chair, Dept. of Chemistry, Univ of Florida <chair@chem.ufl.edu>
**Subject:** Re: Support for new python course

Hi Lisa

This is the course I discussed with you last week.

As far as the AI commitee is concerned, this is a win-win for everyone and a very much needed course !

Adrian

On 2/11/21 7:55 PM, Lada,Elizabeth Anne wrote:

> Dear Lisa,
>
> A faculty member in my department, Paul Torrey has proposed a new 2000 level course with the title *Introduction to Python for Physical Sciences.* This 2000 level course is meant to be a hands on, practical introduction to

python to get students comfortable using python for various problems in the physical sciences. As part of the CLAS curriculum committee's evaluation, we have been asked get your input on this proposed course. I am attaching the syllabus for your review. Could you please let me know if there are any synergies or conflicts with courses that you currently teach in your department and if you support this course going forward in its current form or have any comments or suggestions for improvements.

Thank you for your time and consideration,
Elizabeth

Elizabeth Lada
elada@ufl.edu
Professor & Chair
Department of Astronomy
University of Florida
(352)294-1862

--
Dr. Adrian E. Roitberg
V.T. and Louise Jackson Professor in Chemistry
Department of Chemistry
University of Florida
roitberg@ufl.edu
352-392-6972

**From:** **Lada,Elizabeth Anne** elada@astro.ufl.edu
**Subject:** Fwd: Python Course
**Date:** February 15, 2021 at 10:46 AM
**To:** Torrey,Paul paul.torrey@ufl.edu

EL

Begin forwarded message:

**From:** "Foster,David A" <dafoster@ufl.edu>
**Subject:** **Re: Python Course**
**Date:** February 15, 2021 at 10:45:29 AM EST
**To:** "Lada,Elizabeth Anne" <elada@astro.ufl.edu>
**Cc:** "Foster,David A" <dafoster@ufl.edu>

Dear Elizabeth,

The Department of Geological Sciences supports Dr. Torrey' course proposal for a course entitled Introduction to Python for Physical Sciences. This course will be of interest to students in Geological Sciences and in particular students in the geophysical and computational modeling track. The course will provide a sound introduction for an upper division course in our department that is under development and will be initially taught as a "special topics" starting in Fall 2021.

Regards,

David Foster
Professor and Chair of Geological Sciences

> On Feb 11, 2021, at 8:02 PM, Lada,Elizabeth Anne <elada@astro.ufl.edu> wrote:
>
> Dear David,
>
> As you know, Paul Torrey proposed for a new 2000 level course with the title *Introduction to Python for Physical Sciences* last May. There is a strong desire by us to get this course on the books so we can start offering it to our students . If you remember, this 2000 level course is meant to be a hands on, practical introduction to python to get students comfortable using python for various problems in the physical sciences. As part of the CLAS curriculum committee's evaluation, we have been asked get your input on this proposed course. I am attaching the syllabus for your review. Could you please let me know if there are any synergies or conflicts with courses that you currently teach in your department and if you support this course going forward in its current form or have any comments or suggestions for improvements.
>
> Thank you for your time and consideration,
> Elizabeth
>
> Elizabeth Lada
> elada@ufl.edu
> Professor & Chair
> Department of Astronomy
> University of Florida
> (352)294-1862
>
> <Submit_IntroPython_Syllabus_Torrey_2021.pdf>

**From:** **Lada,Elizabeth Anne** elada@astro.ufl.edu
**Subject:** Fwd: Proposed python course
**Date:** February 26, 2021 at 6:49 PM
**To:** Torrey,Paul paul.torrey@ufl.edu

EL

Begin forwarded message:

**From:** Kevin Ingersent <ingersent@ufl.edu>
**Subject:** **Re: Proposed python course**
**Date:** February 26, 2021 at 4:19:35 PM EST
**To:** "Lada,Elizabeth Anne" <elada@astro.ufl.edu>

Dear Elizabeth:

Apologies for the delay in getting back to you.

Physics has no objection Astronomy offering 2000-level Introduction to Python for Physical Sciences.

Our department is keen for its majors to be familiar with Python. However, it's hard to fit another required course into our major plan. We are therefore recommending that students take the following course, which also counts toward our math elective requirement:

MAD 2502 Intro to Computational Math 3 Credits

Grading Scheme: Letter Grade

Is an introduction to mathematical computation and the Python programming language. Emphasis is on using mathematical algorithms to solve problems in analysis, number theory, combinatorics, algebra, linear algebra, numerical analysis, and probability.

Prerequisite: MAC 2311 or MAC 3472, minimum grade of C.

All the best,

Kevin

On 2/11/2021 7:57 PM, Lada,Elizabeth Anne wrote:

> Dear Kevin,
> As we discussed on the phone, Paul Torrey has submitted a proposal for a new 2000 level course with the title /Introduction to Python for Physical Sciences. /This 2000 level course is meant to be a hands on, practical introduction to python to get students comfortable using python for various problems in the physical sciences. As part of the CLAS curriculum committee's evaluation, we have been asked get your input on this proposed course. I am attaching the syllabus for your review. Could you please let me know if there are any synergies or conflicts with courses that you currently teach in your department and if you support this course going forward in its current form or have any comments or suggestions for improvements.
> Thank you for your time and consideration,
> Elizabeth
> Elizabeth Lada
> elada@ufl.edu <mailto:elada@ufl.edu>
> Professor & Chair
> Department of Astronomy
> University of Florida
> (352)294-1862

# Introduction to Python for Physical Sciences

Syllabus

# I. Course Information

AST 2XXX

Semester TBD

Meeting Day/Time: TBD

Location: TBD

## Instructor

Paul Torrey – paul.torrey@ufl.edu

Office location: 310 Bryant Space Sciences

Office hours: TBD

Office hours location: TBD

Phone: (352) 294-1846

The preferred method for contacting the instructor outside of class and office hours is via the canvas messaging system.

## Course Description

Basics of data analysis, computational techniques, and numerical simulations. Topics include dataset manipulation, algorithm development, time-series analysis, numerical integration, and plotting. Course is taught in the Python programming language.

## Required Course Materials (to purchase/rent)

- *A Student's Guide to Python for Physical Modeling,* Kinder & Nelson (ISBN:9781400889426)

## Statement on Materials and Supplies Fees

N/A

## Rationale:

Computer programming is critically important to a wide range of physical sciences. There is a very loud demand among students for a 2000 level course that would teach the basics of computer programming and numerical methods. This need is further emphasized by the development of upper-level Artificial Intelligence and Machine Learning courses, which require students to already have a basic, functional, understanding of computer programming, especially in Python. This course would be both hands on and practical, with a focus on teaching students how to effectively develop solutions to problems in a

computational environment. Successful students will leave this class with a clear command of how to navigate in a scientific computing environment, how to build a Python program, how to seek and parse Python library documentation, and how Python can be a tool for understanding problems throughout the Physical Sciences.

# II. Coursework & Schedule

## 1. List of Graded Work

| Work | Description | Points |
|---|---|---|
| Homework Assignments | Homework assignments (13 in number; see weekly schedule for details) consist of comprehension questions and mini-coding problems. One homework assignment will be assigned with each week of course material. Homework assignments will ask students to apply the concepts from the lecture and readings, with a goal of assessing student comprehension. Homework assignments sets will be graded for accuracy. All homework assignments must be submitted through the canvas website. | 75 |
| Projects | Project assignments (3 in number) will be used for students to create practical programs and analysis routines that apply the concepts from the course in a more in-depth fashion. Projects will be graded based on the accuracy and efficiency of the submitted code, as well as the results of the project analysis. All project assignments must be submitted through the canvas website. | 25 |

The course canvas site will make clear all assignment dates and deadlines. Any questions about deadlines should be directed to the Instructor, ideally through the course Discussion pages.

## 2. Weekly Course Schedule

| Week/ Date | Topic | Text Sections | Homework: Reading & Activities for Before Class | Assigned Work Due |
|---|---|---|---|---|
| Week 1 | Introduction to Linux/Unix, Python installation, Hello World | Course Notes & Appendix A | HW #1 Assigned | None. |
| Week 2 | Practical Operations in Linux/Unix, Algorithmic thinking, & Python documentation access | Course Notes & Ch 1 | HW #2 Assigned | HW #1 |
| Week 3 | Data types, basic math, variables, and string manipulation | Ch 1 & 2 | HW #3 Assigned | HW #2 |
| Week 4 | Conditional logic, loops, and importing modules | Ch 2 | HW #4 Assigned | HW #3 |
| Week 5 | Arrays, lists, indexing, vector operations | Ch 3 | HW #5 Assigned | HW #4 |
| Week 6 | Importing/exporting data, basics of plotting | Ch. 4 | HW #6 Assigned | HW #5 |
| Week 7 | Defining functions, function parameters, key word arguments, random numbers | Ch 6 | HW #7 Assigned | HW #6 |
| Week 8 | Fitting & plotting data: Earthquake distribution data fitting, Radial Velocity Exoplanet Fitting | Ch 5 & Course Notes | HW #8 Assigned | HW #7 |

| Week/ Date | Topic | Text Sections | Homework: Reading & Activities for Before Class | Assigned Work Due |
|---|---|---|---|---|
| Week 9 | Advanced plotting: Non-standard axes, 3-dimensions, volume rendering, image manipulation | Ch 6 | HW #9 Assigned | HW #8 |
| Week 10 | Converting Physical Laws into code: Glass configurations, atomic structures | Ch 6 | HW #10 Assigned | HW #9 |
| Week 11 | Discretization techniques, numerical Integration | Ch 6 | HW #11 Assigned | HW #10 |
| Week 12 | Bringing Data to Life: Image processing & animation | Course Notes | HW #12 Assigned | HW #11 |
| Week 13 | Classes and Object-Oriented Programming | Course Notes | HW #13 Assigned | HW #12 |
| Week 14 | Python as a community developed language | Course Notes | | HW #13 |

# III. Grading

## 3. Statement on Attendance and Participation

### Attendance and Participation:

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

- Attendance itself is not a graded component of this class. Nevertheless, critical information will be disseminated through our class meetings. Thus, students are expected to either attend class, or otherwise obtain the material discussed during class.
- All assignments (homework and projects) are due at 5 p.m. on the assigned due date. Students must submit completed assignments via canvas in the format specified in the assignment. Late assignments will generally not be accepted unless a documented reason is provided that qualifies under UF's approved/excused absences.

## 4. Grading Scale

For information on how UF assigns grade points, visit: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

| | | | | |
|---|---|---|---|---|
| A | 90 – 100% of possible points | | C | 70 – 73.99% |
| A- | 87 – 89.99% | | C- | 67 – 69.99% |
| B+ | 84 – 86.99% | | D+ | 64 – 66.99% |
| B | 80 – 83.99% | | D | 60 – 63.99% |
| B- | 77 – 79.99% | | D- | 57 – 59.99% |
| C+ | 74 – 76.99% | | F | <56.99 |

# IV. Required Policies

## 11. Students Requiring Accommodation

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://disability.ufl.edu/) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

## 12. UF Evaluations Process

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

## 13. University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

## 14. Counseling and Wellness Center

Contact information for the Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc/Default.aspx, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

## 15. The Writing Studio

The writing studio is committed to helping University of Florida students meet their academic and professional goals by becoming better writers. Visit the writing studio online at http://writing.ufl.edu/writing-studio/ or in 2215 Turlington Hall for one-on-one consultations and workshops.

## 15. Privacy Considerations for Recorded Lectures

In order to encourage candid and open student participation, most class meeting periods will ***not*** be recorded. Instead, lecture-like material will be – as much as possible – distributed in pre-recorded videos. Thus, our class meeting periods will be focused on discussion, problem solving, and asking/answering questions.

However, from time-to-time, we may find it helpful to record a lecture in-whole or in-part for students in the class to refer back and for enrolled students who are unable to attend live. When this is to happen, it will be announced via Canvas and/or in the lecture itself. When course meetings are being recorded, students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-

mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared.

As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited. Specifically, you may not video record, audio record, screen shot, or otherwise record any course meetings. Nor may you share any recorded material from class (legitimate course recordings, or otherwise). Uniform adherence to this policy is critical to ensuring a safe and academically engaging environment. Violations of this policy will be immediately escalated to the Dean of Student Affair's office.