University of Wisconsin - Stevens Point

College of Letters and Science

Department of Computing and New Media Technologies

Fall 2019 – Version 1.9

Course: Introduction to Programming for Data Analytics (DAC 111) #82301

Books: Starting out with Python (4th Edition)

(ISBN-13: 978-0-13-444432-1*)* Bookstore Rental

Class Time: T/R 9:00-10:50 am (Room: CPS 105)

Professor: Dr. Kurt A. Pflughoeft (Floog’heft)

Office: CPS 442

Office hours: T: 1-2 pm, W: 11-12 pm & 3-4 pm and by appointment

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**Course Description:** Introduction the Python programming language; practical issues in statistical programming, including writing logic, reading data, accessing packages, writing functions, debugging, profiling and organizing and commenting code; topics in data wrangling and statistical data analysis will provide working examples. Python is one of the fastest-growing major programming languages and probably the most beloved in data science. No prerequisite is required.

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Week # Dates Topic\* Reading/Assignments

1. Sep 3, 5 Preliminaries: Intro/Installation Ch 1, Lab 1
2. Sep 10, 12 Python Language Basics/IPython Ch 2, Lab 2, HW 1
3. Sep 17, 19 Data Structures, Functions, Files Ch 3, Lab 3
4. Sep 24, 26 NumPy Basics Ch 4, Lab 4, HW 2 .
5. Oct 1, 3 Getting Started with Pandas Ch 5, Lab 5

***Oct. 4 Great Lakes Analytics Conference***

1. Oct 8, 10 Data Cleaning and Preparation Ch 6, Lab 6, HW 3
2. Oct 15, 17 Data Wrangling Ch 7, Lab 7
3. Oct 22, 24# Review, #Midterm Exam .
4. Oct 29, 31 Plotting and Visualization Ch 8, Lab 8, HW 4
5. Nov 5, 7 Data Aggregation and Group Oper. Ch 9, Lab 9
6. Nov 12, 14 Time Series Ch 10, Lab 10, HW 5
7. Nov 19, 21 Advanced Pandas Ch 11, Lab 11
8. Nov 26, **28** Python Modeling, Thanksgiving Ch 12, Lab 12, HW 6
9. Dec 3, 5 Data Analysis Examples Ch 13, Lab 13
10. Dec 10, 12 Catchup and Review Lab 14
11. Dec 17 Final Exam 10:15 – 12:15 pm CPS 105

**Schedule Footnotes:**

* Topic presentation may vary
* Topic presentation largely lists chapter content; lectures will be more focused on example programs which can contain additional concepts.
* Chapter readings, handouts, and lectures are SEPARATE sources for information.
* Actual number of Labs can vary

**Course Outcomes** - Given a successful conclusion of this course, students will be able to:

* Understand the language by creating working Python programs using both the simple command line and the Spyder environment
* Learn about data and how to input, store, and output data in Python#
* Explore classic programming structures—making decisions, looping, and manipulating arrays—and how to implement them in Python
* Provide a thorough study of methods, including passing parameters into and out of methods and overloading them
* Understand object-oriented concepts of inheritance and exception
* Learn how to save data to and retrieve data from files

**Distribution of Points**

Midterm :15%

Final :20%

Labs :20%

Homeworks :25%

Quizzes: :15%

Attendance :05% (Includes Lecture and Lab attendance)

**POLICIES**

**Academic Standards -** UW-Stevens Point values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, we have developed a set of expectations for all students and instructors. This set of expectations is known as the Community Rights and Responsibilities document, and it is intended to help establish a positive living and learning environment at UWSP. Click here for more information: <http://www.uwsp.edu/dos/Pages/AcademicMisconduct.aspx> Academic integrity is central to the mission of higher education in general and UWSP in particular. Academic dishonesty (cheating, plagiarism, etc.) is taken very seriously. Don’t do it! The minimum penalty for a violation of academic integrity is a failure (zero) for the assignment. For more information, see the “Student Academic Standards and Disciplinary Procedures” section of the Community Rights and Responsibilities document, UWSP Chapter 14. This can be accessed at: [http://www.uwsp.edu/dos/Documents/CommunityRights.pdf - page=11](http://www.uwsp.edu/dos/Documents/CommunityRights.pdf%20-%20page=11)

**ADA Statement** - The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for students with disabilities. For more information about UWSP’s policies, check here: <http://www.uwsp.edu/disability/Pages/faculty/lawAndPolicy.aspx>. If you have a disability and require classroom and/or exam accommodations, please register with the Disability and Assistive Technology Center at the beginning of the course and then contact me. I am happy to help in any way that I can. For more information, please visit the Disability and Assistive Technology Center, located on the 6th floor of the Learning Resource Center (the Library). You can also find more information here: <http://www.uwsp.edu/disability/Pages/default.aspx>.

**Attendance Policy -** Attendance will be taken randomly in lecture/lab and will count towards your grade! I rarely lecture “STRAIGHT FROM” the book.

**Audio/Visual Recording Policy -** Electronic recording of lectures is prohibited unless receiving prior written approval from the instructor. Approval will be granted only for self-study purposes. You may use a camera to take pictures of the blackboard, whiteboard or projection screen of lecture material.

**Average Time Investment/Workload Policy Statement**

DAC 111 meets two times a week; each meeting is 110 minutes or ~3.67 hours per week or ~59 hours per semester. Additionally, you should expect to spend at least another 7 hours per week, on average, on outside class work.

**Book** - the Gaddis book has a companion site which requires registration. The companion site contains videos and source code for important topics. The Gaddis book uses an IDE called IDLE which is a little different than the Spyder IDE. However, all the underlying Python code still works and you should be able to determine how to do something in IDLE within Spyder.

**Classroom conduct** – Please turn off cell phones and any audible device during classes. Please do not hold private conversations while I am lecturing as it is distracting to other students. No FOOD or DRINKS are allowed in the lab.

**Canvas -**

* Recorded grades as well as lecture materials (syllabus, PowerPoint class outlines, etc.) will be available on our course 111 Canvas course site.
* It is your responsibility to check that your grades are posted correctly on Canvas. Questions about any posted grade must be raised within TWO weeks of posting. Beyond this time frame, all grade postings are considered correct and final. The Canvas site is not available after the final exam.
* USE the OneDrive to save your files – if need be.
* **Announcements** on Canvas is the main communication tool (not email!)

**Drop Policy -** In accordance with the rules stated by the University and the College of Letters and Science. I will **NOT** personally drop a student - you are responsible for filling out all the forms.

**Email Policy**

* I try to answer questions in a timely manner but if you haven’t received a response from me by the end of the next business day, please resend the email.
* If your email is only informative in nature, such as you are missing a class, I usually don’t reply to those emails but rather just file them. If your email has a question or issue that needs to be addressed, I will reply to it.
* Please include “DAC 111” as part of your subject line.

**Exam Policy -** Except for documented emergencies, no late or makeup in-class exercises, homeworks and exams will be given/accepted.

**Grade Policy -** The following scale can always be used to estimate your minimum grade

Percentage breakdown for semester grades (weighted point totals)

A = 93-100% B- = 80-82.99% D+ = 67-69.99%

A- = 90-92.99% C+ = 77-79.99% D = 63-66.99%

B+ = 87-89.99% C = 73-76.99% D- = 60-62.99%

B = 83-86.99% C- = 70-72.99% F = < 60%

\*Instructor reserves the right to implement a curve which is beneficial to the students.

**Homework Policy** – Homework assignments are listed on the syllabus as HW; they are usually due two weeks after the assigned date. Electronic copies (Canvas Assignments) are required. Format for the electronic file is listed in the lab bullet. Note: You have OneDrive account to save files to if you need to access them later; alternatively you can save materials on a flash drive but remember to take it with you.

**Labs** – usually have in-class exercises. Lab time may be redirected as lecture time at the discretion of the instructor. For lab assignments, you should turn in a Word document which lists your code, compiler messages and one or more screen shots of the program’s output to demonstrate the program works correctly. If you have extra lab time, you are encouraged to work on your homework.

**Lab Software** – The Anaconda package should suffice for most of the examples in the book and class; Anaconda comes with the Spyder IDE. Note: that other labs may not have the software installed but you can do that through the software center. You can install the Python software free of charge on your PC. If you need help with that process, please make an appointment with me.

**Lecture Notes** – electronic version of the notes is available for some topics, however, I strongly encourage you to take good notes as many examples will be written on the board.

**Linkedin Learning (formerly Lynda) -** contains several online videos/courses to help with Python and many other topics. As a UWSP student, use of Lynda is free.

**Announcements** – Always check Announcements on Canvas to find the latest announcements concerning the class.

**Plagiarism Policy -** All assignments and tests should represent YOUR work otherwise you will not receive any credit for that portion of your grade. Disciplinary actions will be pursued for serious offenses.

**Programming Rubrics**:

User interface, if applicable, – convenience, efficiency, overall appearance

Selection of Algorithm – logic correct with efficient code

Program design – proper use of variables, event handling

Program documentation – comments, meaningful variable names

Program execution – executes correctly

Error handling – prevents and handles erroneous situations

**University** **Emergency Preparedness** –

In the event of a medical emergency call 9-1-1 or use Red Emergency Phones. Offer assistance if trained and willing to do so. Guide emergency responders to victims.

In the event of a tornado warning, proceed to the lowest level interior room without window exposure. See [www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx](http://www.uwsp.edu/rmgt/Pages/em/procedures/other/floor-plans.aspx) for floor plans showing severe weather shelters on campus. Avoid widespan structures (gyms, pools or large classrooms.)

In the event of a fire alarm, evacuate the building in a calm manner. Stay 200 yards away from the building. Notify instructor or emergency command personnel of any missing individuals.

Active Shooter – RUN/ESCAPE, hide, fight. If trapped hide, lock doors, turn off lights, spread out and remain quiet. Call 9-1-1 when it is safe to do so. Follow the instructions of emergency responders.

See UW-Stevens Point Emergency plan at [https://www.uwsp.edu/rmgt](https://www3.uwsp.edu/rmgt)