

INSY 6500/6: Information Technology for Operations

Fall 2019

Instructor: Jeffrey S. Smith, Ph.D.

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Office Hrs: M – 11:00 a.m. – 2:00 p.m. or
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Office Hrs: W,F – 1:00 p.m. – 3:00 p.m. or by
appointment

Credit Hours: 3

Prerequisites: None

Course Text and Reference Material:

Course Texts:

VanderPlas, J., *Python Data Science Handbook: Essential Tools for Working with Data*, O'Reilly Media, 2016. Available on Amazon and at

<https://jakevdp.github.io/PythonDataScienceHandbook/>

Grolemund, G. and Wickham, H. *R for Data Science*, O'Reilly Media, 2017. Available on Amazon and at <http://r4ds.had.co.nz/>

GitHub Repository:

<https://github.com/ausim/InfoTechForOps>

Video Modules:

<http://jsmith.co/node/244>

Course Description: Role and potential of using computer-integrated systems within manufacturing and service industries. Analysis of relevant data, synthesis of the flow of information in an operations environment, and development of databases to support the production process.

Course Objectives: By the completion of this class, students should understand the use of our standard toolset (Python, Jupyter, R, Matplotlib, MySQL) and have the ability to manipulate and visualize datasets of all sizes. In addition, students should have a basic understating of *data science* and the available tools/resources related to this topic.

Course Topics By Week:

1. Course introduction, technology toolkit
2. Introduction to Python
3. Python Programming Basics
4. Python – Numpy, SciPy
5. Python - Pandas
6. Data set example 1
7. Python – Matplotlib
8. R, RStudio, CRAN
9. R
10. Data Visualization
11. Data set example 2

12. Relational Databases
13. Data set example 3
14. Integration
15. Project Presentations

Course Requirements/Evaluation:

<i>Item</i>	<i>Due Date</i>	<i>Weight</i>
Term Exam (in-class + take-home)	On or around 10/31/19	30%
Course Project	12/6/19; 5:00 p.m.	30%
Homework	Various	35%
Class Participation	Various	5%

The in-class exam component will be closed-book and closed-notes and will be held during the regularly scheduled class period. The take-home exam component will be open-book and open-notes. Makeup exams will be given only with a TigerCub-approved excuse or prior instructor approval. If you miss an exam, you must contact me within two calendar days of the missed exam. Note that job interviews are not TigerCub-approved excuses – when in doubt, you should check with the instructor *beforehand*.

Homework will be an important part of the class and you should work alone on all assignments unless otherwise stated in the written homework assignment. You can discuss certain aspects of the assignments with your classmates, but you should complete these by yourself and turn in only your own work. All assignments should include a formal write-up and should not be hand-written (i.e., use a word processor). *Late homework will be penalized by 50% per calendar day.*

Projects can be done individually or in groups of two. Details about the project topics, format, requirements, etc. will be discussed during the first few weeks of class.

Grading will be on a standard 10-point scale with the instructor's option to curve any of the individual exam grades.

Class Policy Statements: There will be no unannounced quizzes. Course attendance is recommended, but will not be evaluated as part of the course grade. Class participation will be evaluated based on in-class discussions/questions along with emailed questions/comments for classroom discussion.

Disability Accommodations: "Students who need accommodations are asked to electronically submit their approved accommodations through AU Access and to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternate time can be arranged. To set up this meeting, please contact me by e-mail. If you have not established accommodations through the Office of Accessibility, but need accommodations, make an appointment with the Office of Accessibility, 1228 Haley Center, 844-2096 (V/TT)."

Academic Honesty: All portions of the Auburn University student academic honesty code (Title X11) found in the Tiger Cub will apply to this class. All academic honesty violations or alleged violations of the SGA Code of Laws will be reported to the Office of the Provost, which will then refer the case to the Academic Honesty Committee. Violations include, but are not limited to:

1. *Cheating on an examination* - This includes such things as copying from another's paper, using unauthorized notes, calculators, etc., or giving or receiving unauthorized aid, such as trading examinations, whispering answers, passing notes, or using electronic devices to transmit or receive information.

2. *Plagiarism* - This is using someone else's work without giving credit. It is, for example, using ideas, phrases, papers, laboratory reports, computer programs, data - copied directly or paraphrased - that you did not arrive at on your own. Sources include published works such as book, movies, web sites, and unpublished works such as other students' papers or material from a research service. In brief, representing someone else's work as your own is academically dishonest. The risk of plagiarism can be avoided in written work by clearly indicating, either in footnotes or in the paper itself, the source of any major or unique idea or wording that you did not arrive at on your own. Sources must be given regardless of whether the material is quoted directly or paraphrased.

Copying another student's assignment and putting your name on it is plagiarism.

3. *Unauthorized collaboration* - This is working with or receiving help from others on graded assignments without the specific approval of the instructor. If in doubt, seek permission from the instructor before working with others. Students are encouraged to learn from one another: Form study groups and discuss assignments, but each assignment must be individual work unless specifically stated and turned in as a group assignment. You are encouraged to talk to one another about your assignments, however, all assignments must be done by the student(s) whose name is (are) on it!
4. *Multiple submission* - This means using the same work to fulfill the academic requirements in more than one course. Prior permission of the instructors is essential.

The academic honesty issues that I see most often involve plagiarism and unauthorized collaboration. When in doubt, please ask me.