**Course Syllabus**

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| **Instructor:** | James Papademas, MBA, MSMC, MISM |
| **Cell Phone** | 773.558.7866 |
| **Email:** | IIT E-Mail: [jpapadem@iit.edu](mailto:jpapadem@iit.edu) |
| **Office:** | At IIT Chicago Campus/per pre-arranged appointment. |
| **Office Hours:** | Monday/Wednesday 5:55 PM–6:25 PM Central Time |
| **Online:** | SKYPE: username = james.papademas (by arrangement) IIT Blackboard Classroom for ITMD 513 |

**Class Tutorial Reference:**

Python Learning Trail - <http://www.tutorialspoint.com/python/index.htm>

**Resources:**

Why Python? -<http://www.linuxjournal.com/article/3882>

Standard Python Library - http://effbot.org/librarybook

Python GUI (Intro to Tkinter) - <http://effbot.org/tkinterbook/tkinter-index.htm>

Python IDE (PyCharm) - http://www.jetbrains.com/pycharm

Django Framework for the web - <https://www.djangoproject.com>

**Advanced Reading (recommended textbook):**

Starting out w./ Python - Starting Out with Python: 4th Edition, Tony Gaddis ISBN-10: 0134444329, ISBN-13: 978-0134444321

**Prerequisites: [(ITM 411 with min. grade of D) OR (ITMD 411 with min. grade of D)]**

**Course Description**

Contemporary open-source programming languages and frameworks are presented. The student considers design and development topics in system, graphical user interface, network, and web programming. Dynamic scripting languages are covered using object-oriented, concurrent, and functional programming paradigms. Concepts gained throughout the course are reinforced with numerous exercises which will culminate in an open-source programming project. (2-2-3)

**Course Objectives**

Students completing this course will be able to:

● Write Procedural and Object Oriented Python code.

● Write Python programs using various data types, assignment statements, method calls, while loops, for loops, and conditionals.

● Learn how to use and manipulate several core data structures: Lists, Dictionaries, Tuples, and Strings.

● Understand and employ objects, functions and modularity.

● Read data from text files, and write formatted text files.

● interact with websites and load data from them (known as web scraping).

● Read and write data to/from SQL databases.

● Create a Python based Graphical User Interface using Python interfaces such as Tkinter.

● Author well constructed code and software documentation.

● Utilize an IDE to develop, test and debug Python code.

● Learn TDD (Test Driven Development) techniques to test and verify code structure

**Course Outcomes**

Students completing this course will be able to:

● Understand basic Python language and multi-functionality from procedural programming to Object Oriented programming concepts.

● Develop an understanding of scripting and the contributions of scripting languages.

● Develop an understanding of the built**‐**in objects of Python.

● Be exposed to advanced applications such as TCP/IP network, GUI, Systems, Scientific and Database programming

● Perform multithreaded programming, Web applications with popular frameworks such as Django

**Course Requirements**

Student Responsibilities: Class attendance and active participation are essential if students are to receive maximum benefit from the class. Participation requires preparation including completion of reading, labs, projects and exams by the due dates. If you cannot attend class or complete assignments, labs, projects or exams on time, please let the instructor know beforehand so that we can discuss alternative strategies. It is the student’s benefit to use their time wisely whether it is in preparation for class, during scheduled class, or in the lab. When students are in any IIT lab environment, they should abide by the college policies. Questions and comments are welcome.

Exams and make-up policy: There will be a mid term and final exam for the course. No retakes of exams are allowed unless there are extraordinary circumstances. Any exams may be taken early if the instructor is given adequate time to prepare testing arrangements.

Assignments & General Grading: It is extremely critical that students complete all assignments timely otherwise late points will be deducted accordingly. Submitting assignments timely in the order assigned will ensure progression according to the academic design of the course. **The instructor will not accept bulk assignments**. The only way to learn Python is to code in Python. The best Python programmers are the ones who have invested the time to learn the concepts and applied them to programming problems. Please do not expect to finish the assignments for this class the night before, or during the weekend they are due. The project assignments will take considerable effort. “A” grades on projects are reserved for code that properly fulfills all of the listed requirements in a computationally accurate and reasonably efficient manner, and is well organized and readable based on the basic design principles covered in class.

Email: Every attempt will be made to answer email daily. Please indicate in your email clearly the problem you are experiencing in your subject and body of your email. Please also include your name and course enrolled.

Academic Policy: Any violations of IIT policies regarding academic honesty and or integrity will be referred automatically to the appropriate college authorities for disposition. Please see appropriate pages in the college catalog for definitions and regulations. The minimum penalty for cheating will be a **zero** for all parties involved on that exam, lab, or project.

Withdraw policy: No longer attending a class does not constitute an automatic withdrawal. Students are expected to withdraw from the course if they have decided not to pursue the course anymore.

Classroom behavior: During the class time, considerate conduct by all persons is important to a favorable learning environment. Any infringement on the rights of others to get an education will be dealt with in an appropriate manner. Please set all electronic devices such as cell phones or pagers to silent or vibrate mode. No cell phone talking is permitted in the classroom. If you must take the call, please continue your conversation outside of the classroom and please make it short so as to not miss your lecture material.

General notes: In order to achieve the course objectives, it is important to enjoy the class in addition to complying with the above requirements, and the rules and policies of IIT. Most students sign up for the courses with the best intentions. If you are experiencing course/college related problems, please feel free to discuss it with your instructor before a crisis develops so we can resolve them in a manner beneficial to all parties involved. Grads taking the course will be expected to include additonal work at the graduate level caliber as well than undergrads taking the course as will be noted on various assignments throughout the given coursework.

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. The Center for Disability Resources (CDR) is located in the Life Sciences building, in room 218, with telephone 312-567-5744 or with email at [disabilities@iit.edu](mailto:disabilities@iit.edu).

**Grading and Evaluation Criteria.** Grade distribution is represented as follows:

A – 90% and up (superior)

B – 80 to 89.99% (good)

C – 70 to 79.99% (fair)

D – 60 to 69.99% (poor)

F – 59.99% and below (failing)

**Grading Policy**

Visit the Assignments link in BlackBoard for details about each assignment listed below. Click on

Assessments to access quizzes and exams. Be sure to pay close attention to deadlines. There

will be no make up assignments or quizzes, or late work accepted without a serious and

compelling reason and instructor approval. Points you receive for graded activities will be posted

to the Blackboard Grade Book. Click on the My Grades link on the left navigation to view your

points. The instructor or TA will update the online grades each time a grading session has been

complete—typically 10 days following the completion of an activity. You will see a visual

indication of new grades posted on your Blackboard home page under the link to this course.

Final grades assigned for this course will be based on the percentage of total points earned and

are assigned as outlined above including other soft skill participation. See [ITM Student Handbook](http://www.itm.iit.edu/resources/studentresources.php) for grade percentage to letter grade table.

Point Assessments (grade weight based on a point scale):

Labs: 500

Midterm: 100

Final project: 200

Final Exam: 200

Incomplete Grading Policy

Under emergency/special circumstances, students may petition for an incomplete grade. An

incomplete will only be assigned based on department protocol including instructor approval. All

incomplete course assignments must be completed the following term as noted in the IIT Academic Calendar.

**Academic Dishonesty**

Academic Dishonesty is not acceptable and will not be tolerated in ITMD 513. Papers found to be

Plagiarized and Homework found to be copied will result in a zero grade. Please read the ITM

Student Handbook to review the department's policies on plagiarism and identical or substantively identical work.

Lab programs will be based on the following point allocations: Program correctness: (80 percentage) points (Your program runs and executes without errors, meeting all program requirements with readable program output display)

Program structure-Design Approach and Documentation: (20 percentage) points (Program must follow standard programming styles, i.e, procedural/OOP methodology considerations). Please examine programming styles from class demo’s, textbooks, etc. Your code should always include error trappings, proper usage of blocks, spacing and indentations, proper documentation, meaningful variable names, comment statements, algorithm development, and proper programming logic usage/approaches to resolve assigned problem.

**Label each lab assignment with your name at the top of your source code as well as your lab number. Each lab must have adequate snapshots of output for full credit.**

**Technology Requirements**

● A Windows, Mac or Linux computer, preferably with a Core 2 Duo or better processor,

and 2 or more Gigabytes of RAM.

● Internet Connection (DSL, LAN, or cable connection desirable)

● Access to IIT Online System (blackboard.iit.edu)

**Graduate expectations**

Grad students are expected to provide grad level work on *all* lab and final project assignments. Assignments will detail specific outcomes for grads including use of modularity vs. OO program design, algorithm logistics, error trapping routines, code debugging, inheritance & polymorphic implementation, and provisioning tools such as GIT.

Lab assignments and projects are to be thoroughly documented.

Database processing work should demonstrate concurrent processing techniques and security and backup/recovery strategies.

Students will be encouraged to use various IDE’s such as Eclipse, Visual Studio to enhance programming capabilities.

**Blackboard – The IIT Online Classroom**

We will use IIT's Blackboard system (<http://blackboard.iit.edu>) to communicate weekly agendas, submit homework, labs, ask questions, to post lecture materials and get feedback. Each student should have been notified of his or her Blackboard account for this course. If you have not been notified, go to above web page where there is contact information. Blackboard weeks start from Monday through Sunday.

**Tentative Schedule of Topical Outline**

1. Intro to Python

2. IPO

3. Simple Functions

4. Decision Structures and Boolean Logic

5. Repetition Structures

6. Value-Returning Functions and Modules

7. Files and Exceptions

8. Lists and Tuples

9. More about Strings

10. Dictionaries and Sets

11. Classes and OOP

12. Inheritance and Polymorphism

13. Recursion

14. GUI programming

15. Systems and Networking Programming Techniques / JSON parsing

16. Webwork with Django MTV Framework

17. Working with SQLite Database