

# Introduction to Computational Mathematics

## MAD 2502

**When:** Tuesday and Thursday, 12:30 pm - 1:50 pm, starting Tuesday, January 11

**Where:** SE 271

**Instructor:** Thomas Eisenbarth

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**Office hours:** Tuesday 10 a.m. to 12 noon and Thursday 2:30 p.m. to 4 p.m., or by appointment

### Course Information:

This course gives an introduction to programming a computer for solving mathematical problems. The course uses the Python programming language. Starting from the basic properties of a programming language, concepts of modern computer programming will be introduced.

The course covers the following topics:

1. Built in data types and functions
2. Controlling the program flow
3. Data structures
4. Debugging and commenting
5. Sorting and searching
6. Different programming styles

After attending the course you will obtain a basic understanding of how to program a computer and how to solve a variety of problems using a programming language. You will be able to design and debug smaller programs. You will know how mathematical problems can be solved by writing your own computer programs. You will understand the strengths and difficulties of computer aided problem solving. Furthermore, the course should allow you to extend your programming skills in python and other programming languages of your choice.

### Target Audience:

The course targets undergraduate students interested in computer based problem solving. No prior programming experience is required.

### Grading

Grading is based on homework projects, the quizzes, as well as the mid-term and the final exam. Exams will be in-class, take-home, or a mix of both. Homework projects are *individual* take-home assignments. No late assignments will be accepted.

Homework:	<b>45%</b>
Quizzes:	<b>10%</b>
Mid-Term Exam (February 24, 2011):	<b>20%</b>
Final Exam (April 28, 2011, 10:30 - 1:00 PM):	<b>25%</b>

The grading scale will be no worse than the following.

Cumulative Performance	Grade
>94%	A
>90% - 94%	A-
>87% - 90%	B+
>83% - 87%	B
>80% - 83%	B-
>75% - 80%	C+
>65% - 75%	C
55% - 65%	D
<55%	F

### Textbook

The course will not follow a particular text book. The *Practical Programming* book is recommended as a reference. Further material will be provided through blackboard.

[1] (recommended) by J. Campell, P. Gries, J. Montojo, G. Wilson: *Practical Programming. An Introduction to Computer Science Using Python*. The Pragmatic Programmers, 2009

[2] (optional) Python Documentation: <http://docs.python.org/py3k/> A good starting point is the Python Tutorial.

### Students with Disabilities

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton - SU 133 (561-297-3880), in Davie - MOD I (954-236-1222), in Jupiter - SR 117 (561-799-8585), or at the Treasure Coast - CO 128 (772-873-3305), and follow all OSD procedures.

### Honor Code

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [http://www.fau.edu/regulations/chapter4/4.001\\_Honor\\_Code.pdf](http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf).