

MATH 4330: Mathematics Computing  
Section 001, MWF 10:00–10:50 MATH 113

**Course Information:**

Instructor: Chris Monico  
 Email: [c.monico@ttu.edu](mailto:c.monico@ttu.edu)  
 Office: MA-252  
 Office Hours: M 12:00-1:30, T 1:00-2:30, or by appt.  
 Required Text: *The Art of Computer Programming vol.2*, 3rd Ed., Donald Knuth

**Course outline/Important Dates:**

*Prerequisite:* consent of department.

*About the course:* This course is intended to introduce mathematics majors to special topics in mathematics and programming. Students are assumed to be advanced mathematics students, but beginning programming students.

Students will be given both written assignments and programming assignments. Written assignments must be completed in a clear, concise, grammatically acceptable, and legible manner. If I cannot follow your argument, it's not a very good argument and I will grade it as such. If I cannot read it clearly, I will ask you to rewrite it.

The programming component of this course will use the Python language. Your first two weeks worth of programming homework will be to learn basic programming skills in the Python language by completing the Python course on codecademy (<http://http://www.codecademy.com>). Below is my best approximation of what we will cover and when we will cover it, as well as a list of important dates.

Weeks 1 and 2	4.1
Week 3	4.2.1, 4.2.2
Week 4	4.3.1 – 4.3.3
Week 5	4.5.2
Weeks 6 and 7	4.5.4
Week 8	4.6.2
Weeks 9 and 10	3.1 – 3.2
Week 11	3.3.1
Weeks 12 and 13	3.3.2
Week 14	3.3.4
Week 15	3.4.1
Week 16	3.4.1

MLK Day, no class	Mon. 1/20.
Exam 1	Friday, 3/7.
Spring break	3/15 – 3/23.
Last day to drop	Wed. 3/26.
No class	Mon. 4/21.
Last day of classes	Tues. 5/6.
Final Exam	<b>Mon. 5/12, 1:30 – 4:00.</b>

**Attendance:** Class attendance is *mandatory*. It is assumed that you will attend, so I will not waste your time by taking attendance. However, keep in mind that it will be decidedly difficult for you to pass this course if you do not attend. If you arrive late to class, enter quietly. If you miss a class, it is your responsibility to find out what you missed (assignments, notes,...); either ask a fellow student or come by my office to find out. If you are absent for an exam, you will be permitted to make it up *if and only if* you are absent for one of the following reasons:

- You are out of town performing duties on behalf of the university (i.e., athletics). Advance notification is required.
- Religious holiday (see below).

- Severe illness, documented by a physician.
- Death in the family.
- Other extenuating circumstances, at the instructor’s discretion (I am *not* very generous with this).

**Expected Learning Outcomes** The students will learn how computers can be used to study concepts, or solve problems related to pseudo-random number generation, computer arithmetic, number theory, and polynomials. Concepts and skills to be mastered by the students include but are not limited to the following: generating uniform random numbers, statistical tests (for randomness), floating point arithmetic, multiple precision arithmetic, the Euclidean algorithm and its analysis, integer factorization, and polynomial arithmetic.

**Assessment of learning outcomes** The expected learning outcomes for the course will be assessed through scheduled exams and homework assignments. Your final grade in this course will be determined by the weighted components and grading scale below.

Grade components		Grade Scale	
Homework:	50%	90–100%	A
Exam 1:	25%	80–89%	B
Final Exam:	25%	65–79%	C
		55–64%	D
		0–54%	F

**ADA Accommodation:** Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as possible to make necessary arrangements. Students must present appropriate verification from Student Disability Services during the instructor’s office hours. Please note that instructors are not allowed to provide classroom accommodation to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services office in 335 West Hall or call 806-742-2405.

**Religious Holy Day Observance (OP 34.19)**

1. “Religious holy day” means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code §11.20.
2. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence.
3. A student who is excused under Section 2 may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

**Academic Integrity**

I expect all assignments to be completed without assistance from the Internet, except when I explicitly allow it. Looking up a solution online is like asking someone else to exercise for you - there’s no value in it whatsoever for you. The point of an exercise is to think about it, struggle

with it, and gain problem solving experience. If the only point of a given exercise was simply learn some small fact, I would simply hand you the small fact. You should expect to work hard solving the problems. If you don't enjoy working hard on a math problem, you've chosen the wrong major. That said, you are always *very welcome* to come talk to me. I will be happy to provide hints or suggestions, short of actually solving a problem for you. But if you do go against my wishes and use outside resources to complete an assignment, **you must cite your sources**. I take academic integrity very seriously, and a failure to cite your sources constitutes plagiarism, which may result in a grade of F in the course, or worse, at my discretion. If you use an outside source for assistance, that means there was something hard that you couldn't figure out for yourself, while someone else did figure it out. As such, it constitutes an important part of the process you used to arrive at a solution, and you are obliged to give credit where it's due and not claim it as your own.