Computer Programming - COMP 4001 / 6001 – Fall 2016

7:10 pm - 8:35 pm    MW    Dunn Hall 233

Instructor: Marko Puljic
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Office Hours: Dunn Hall 305
  ● T 2:30pm – 4:00pm
  ● R 2:30pm – 4:00pm
  ● And by appointment. Send email to schedule.

Course Description:

Basic concepts in computer programming; incorporates object oriented
concepts, variables, flow control statement, arrays and lists, debugging and
testing. NOTE: This course may not be used to fulfill requirements for the
Computer Science major or Computer Science minor. PREREQUISITE: MATH
1710 or MATH 1910 or MATH 1421 or permission of instructor. (F, Sp)
3.000 Credit hours
3.000 Lecture hours

Resources:

Required Text
Think Python : How To Think Like a Computer Scientist, Allen Downey
(http://www.greenteapress.com/thinkpython/thinkpython.pdf)

Other Resources:
• The Python Tutorial from https://docs.python.org/3/tutorial/index.html
• Google : https://developers.google.com/edu/python/?hl=en
• Invent with Python : https://inventwithpython.com

Intended Outcomes:
* Basic Python Programming
* Design, implementation, documentation, and testing skills
* Strategies for solving computational problems
* Applications of CS in society and real world context
Class Format:
The class will involve lectures by the instructor, individual and team-based homework, paper presentations by students, and a team-based project. Basic concepts for each topic will first be introduced by the instructor in lectures. Homework will then be assigned to enhance the understanding of basic concepts.

Prior Class Preparation:
Thorough preparation—by students and instructor—and active participation are essential to a successful course. Learning comes from struggling with the issues outside of class, then discussing them (and the struggle) in class. Unprepared students personally miss out on most of the learning and also cheat their classmates because they cannot contribute fully to the learning that occurs in class.
The instructor will assign readings from books and papers. Each student is expected to have read these before coming to class. This will enhance student learning as well as enhance other students’ learning because more meaningful discussion can take place in the class. Class participation assessment will be done by the instructor as well as peer students in the class.

Assignments, Exams, and Project:
Exams: There will be two midterm exams – one midway through the semester and one in the last class. The exams will be open book and open notes but closed neighbor and closed computers (laptops, desktops, PDAs, cell phones, etc.). The 2nd midterm exam will not be comprehensive.

Homework: There will be both individual homework and team homework based on the course content. All homework are to be submitted to http://elearn.memphis.edu .

Project: Each student team will do a programming project related to process, memory, or file management. Also there could be special approval for the original project. Students are expected to come up with ideas for the project that involve design and development of a proof of concept for a new application. No two teams will work on the same project.
A series of milestones is to be developed by each team to ensure regular progress on the projects. Upon successful completion, the projects will be demonstrated in the final exam time slot. Each project will make a mid-term presentation around semester break and a final presentation in the time allotted for Final Exam.
You are encouraged to discuss your projects regularly with the instructor and/or the TA for feedback.

Teams:
Each student is expected to form/join a team for both homework and the project. The team composition for homework may be different than for the project. Team membership for homework should be rotated to allow students to know and learn from different students in the class.
Formation of teams will be left to your discretion, but I encourage you to include some variety in terms of gender, ethnicity, nationality, work experience, etc. If you need motivation beyond the opportunity to learn from classmates with different experiences, recognize that the teams
you work with on the job usually include such diversity. It is wise to have at least one team member who is fluent in English, to help ensure that your reports are written clearly. Teams are to work independently. Reports, programs, or solutions from students who took the class in the past are strictly off limits.

**Evaluation: Final Grades:**

An individual’s grade will be composed of his/her team’s score as well as his/her individual score as described in the following table.

<table>
<thead>
<tr>
<th>Team grade contributions</th>
<th>Individual grade contributions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (3)</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Homework (3)</td>
</tr>
<tr>
<td>Project with 2 presentations (1)</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>Midterm Exam 1</td>
</tr>
<tr>
<td>Programming Assignments (2)</td>
<td>20%</td>
</tr>
<tr>
<td></td>
<td>Midterm Exam 2</td>
</tr>
</tbody>
</table>

Students also may earn honors credit by designing their own special projects based on independent study.

**Assignment of letter grade will be determined based on performance of the class. Current plan is:**

A+: >= 95, A: >= 90, A-: >= 87.5,

B+: >= 82.5, B: >= 80, B-: >= 77.5,

C+: >= 72.5, C: >= 70, C- : >= 67.5,

D+: >= 62.5, D: >= 60,

F: < 60.

**Course Policies: Attendance:**

You are required to attend every class unless there is a documented emergency. The instructor may check attendance at the beginning of every class. If you miss a class, you will have to make your own arrangements to learn the materials covered in that class and to know of any announcements made in that class.
Late Policy:

Homework and reports are due before class on the due date. For every 24 hours that an assignment is late, 20% of the total score will be deducted. For every day that an assignment is late, 20% of the total maximum credit will be deducted. For example, if an assignment is worth a maximum of 10 points, it will be worth only a maximum of 8 points if the assignment is late by one day.

Any homework or reports submitted 5 days after the due date and time will NOT be accepted (submit all your homework on eLearn).

Testing Policy:

There will NOT be any makeup quizzes or exams unless there is a documented emergency, so it is very important for you to attend every lecture and exam.

Plagiarism/Cheating Policy: (These paragraphs are mandatory.)

Plagiarism or cheating behavior in any form is unethical and detrimental to proper education and will not be tolerated. All work submitted by a student (projects, programming assignments, lab assignments, quizzes, tests, etc.) is expected to be a student's own work. The plagiarism is incurred when any part of anybody else's work is passed as your own (no proper credit is listed to the sources in your own work) so the reader is led to believe it is therefore your own effort. Students are allowed and encouraged to discuss with each other and look up resources in the literature (including the internet) on their assignments, but appropriate references must be included for the materials consulted, and appropriate citations made when the material is taken verbatim.

If plagiarism or cheating occurs, the student will receive a failing grade on the assignment and (at the instructor’s discretion) a failing grade in the course. The course instructor may also decide to forward the incident to the University Judicial Affairs Office for further disciplinary action. For further information on U of M code of student conduct and academic discipline procedures, please refer to: http://www.people.memphis.edu/~jaffairs/

Course Outline

1 : Course Overview and The way of the program : August 22
2 : The way of the program (Ch 1) : August 24
3 : Variables, expressions and statements : August 29 : individual homework 1 due
4 : Functions (Ch 2) : August 31
5 : Conditionals and recursion : Sept. 5 : team homework 1 due
6 : Fruitful functions : Sept. 7 :
7 : Iteration : Sept. 12
8 : Strings : Sept. 14
9 : Case study: word play : Sept. 19
10 : Lists : Sept. 21
11 : Dictionaries : Sept. 26
12 : Tuples : Sept. 28 : team prog. assignment 1 due
13 : Student Presentations : October 3 : project progress presentation
14 : Midterm Exam : October 5
15 : Case study: data structure selection : October 12
16 : Files : October 17
17 : Classes and objects : October 19
18 : Classes and functions : October 24
19 : Classes and methods : October 26 : individual homework 2 due
20 : Inheritance : October 30 : team homework 2 due
21 : Case study: Tkinter : Novem. 2
22 : Debugging : Novem. 4
23 : Analysis of Algorithms : Novem. 9 : team presentations 2
24 : Analysis of Algorithms : Novem. 14 : team prog. assignment 2 due
25 : Student Presentations contd.; Review : Novem. 17 : individual homework 3 due
26 : Midterm Exam 2 : Novem. 22 : team homework 3 due
28 : Project Demonstration and Presentation : Novem. 17 :
29 : Project Demonstration and Presentation : Novem. 22 :
30 : Finals if you need a make up for the exams on R, Dec 8, 10:30a - 12:30p