Foundations of Discrete Mathematics

CRN 31812 - COT 2104 - E01 Credits: 3
Valencia College – East Campus, Bldg 2 Rm 118
Full Term Summer 2012 - Mondays 6:30 pm to 9:50 pm

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Web Site: http://frontdoor.valenciacollege.edu/?dglinos
Phone: 407-361-2661
Office hours: by appointment only

COURSE DESCRIPTION
This course builds basic mathematical logic skills and the foundations of discrete mathematics. Topics include statements, truth tables and tautologies, arguments, rules of demonstrations, conditional demonstrations and indirect proof, logic of quantifiers, algebra of sets, definitions and axioms of set theory; informal proof, relations and functions, mathematical induction, strings and other topics in discrete mathematics. (Special Fee: $34.00)

COURSE OUTCOMES
At the conclusion of this course each student will

- Have an understanding of the language of mathematical logic.
- Understand the basic structure of a logical argument and understand the differences between valid and invalid arguments.
- Understand and apply quantifiers in logical arguments.
- Understand and use set theory.
- Understand and be able to manipulate strings.
- Be able to create proofs using mathematical induction.
- Be able to define and use basic functions in proofs.

PREREQUISITE
Minimum grade of C in MAC 1105 (College Algebra) or departmental permission.

REQUIRED TEXT/MATERIALS
There is one required textbook for this course:
Discrete Mathematics with Graph Theory, Third Edition, by Goodaire and Parmenter

NO-SHOW PROCEDURE
Any student who does not attend class prior to the start of the no-show period for each part of term will be withdrawn by the instructor as a no-show. This will count as an attempt in the class, and the student will be liable for tuition. If your plans have changed and you will not be attending this class, please withdraw yourself through your Atlas account during the drop period for this part of term.

ATTENDANCE POLICY
Attendance in class is required every day. If you miss a class, you will need to make up any work that you missed. Attendance is mandatory and if you cannot attend class for any reason it is your job to contact a classmate to determine what material you missed.
WITHDRAWAL POLICY
If you choose to withdraw from this class, you must file a withdrawal form by the withdrawal deadline, in which case you will receive a grade of W. Any student who withdraws or is withdrawn from a class during a third or subsequent attempt in the same course will be assigned a grade of F, per Valencia College Policy 4-07. Students may not withdraw after the withdrawal deadline and the instructor will not withdraw students after the withdrawal deadline. Students who stop turning in work or taking exams will not be withdrawn and will receive the grade that they have earned including zeros for all missed assignments and exams. If you no longer wish to remain in the class, you must withdraw yourself prior to the withdrawal deadline.

HOMEWORK
The homework problems are designed to strengthen your understanding of the material and prepare you for the chapter tests and final exam. Homework will not be collected or graded but it is expected that you will complete all homework assignments. Please note that if you do not do the homework, or if you do not understand the homework, you will probably not do well on the exams.

COURSE GRADE
You can earn a total of 400 points in this class, comprising 100 points for each of the four Chapter tests. The final exam will be comprehensive and optional. It will not be a direct part of your grade, but if you choose to take it, it will replace your lowest exam score or a missed exam. It is worth 100 points and can ONLY be used to replace an exam. The final exam will be July 30, 2012 from 8:20 pm to 9:50 pm.

Your course grade will be assigned using a standard point evaluation:

A    360-400 Points
B    320-359 Points
C    280-319 Points
D    240-279 Points
F    less than 240 Points

MAKE-UP POLICY
There will be no make-up exams for any reason at all. If something prevents you from taking an exam, your only recourse will be to take the optional final exam to replace the zero for the missed exam. There will be no exceptions to this rule.

EXTRA CREDIT POLICY
Extra credit assignments, if offered, will be designed to extend the material learned in class. Extra credit opportunities will never be available to a single individual without being extended to the entire class. Due dates for extra credit assignments will be strictly enforced. Late extra credit assignments will receive no credit no matter how short the period of lateness.

COMMUNICATION
I will communicate with you mainly during our contact in class. All communication outside of class should be conducted using the messaging component of the Blackboard system. Please reserve phone calls and emails for extraordinary circumstances only.

COURSE POLICIES
We will use the Blackboard system as the principal means for communicating and for delivering documents. It is your responsibility to check your Blackboard dashboard frequently for important announcements, syllabus updates, documents for download, and for messages from the instructor and fellow students.

COURSE CONDUCT
Students are expected to be courteous and respectful of one another both in the classroom as well as in
their posts to the course Blackboard. We will be polite and helpful to one another. Students who violate this rule will be immediately disciplined in the manner deemed appropriate by the course instructor.

**ACADEMIC DISHONESTY POLICY**
Plagiarism and cheating are serious offenses and may be punished by failure on the exam, paper, or project; failure in the course; and/or expulsion from the College. For more information, refer to the Academic Dishonesty policy (College Policy 8-11) and the Student Code of Conduct (Policy 8-03).

**COLLEGE POLICIES:** A full description of all College policies can be found in:
- College Catalog at [http://www.valenciacollege.edu/catalog/](http://www.valenciacollege.edu/catalog/);
- Student Handbook at [http://valenciacollege.edu/studentdev/CampusInformationServices.cfm](http://valenciacollege.edu/studentdev/CampusInformationServices.cfm)

**LEARNING COMMUNITY**
The learning community consists of 4 elements: *Professor, Student, Course Content* and the *Physical Environment*. As your *professor* I serve to introduce you to the material, give examples and explanations, and serve as a helpful resource. It is my job to *empower* you to become a successful learner. As the *student* you must explore all resources available that are needed to help you be successful. You must realize that the learning is ultimately *your* responsibility through attending class lectures, reading the book, attempting homework and using any other tools you feel might individually help you. Whether or not you feel the *course content* is exciting or boring should not govern the amount of time and energy that you put into learning the content. Keeping a positive attitude always helps, and thinking negatively will affect you mentally by making you less motivated. The *physical environment* refers to the classroom in which the content is presented. If you are respectful of your fellow students and keep the classroom as a proper learning environment (without any unnecessary interruptions) then the maximum amount of learning will take place in the environment.

**STUDENT ASSISTANCE PROGRAM:** Valencia College is interested in making sure all our students have a rewarding and successful college experience. To that purpose, Valencia students can get immediate help with issues dealing with stress, anxiety, depression, adjustment difficulties, substance abuse, time management as well as relationship problems dealing with school, home or work. BayCare Behavioral Health Student Assistance Program (SAP) services are free to all Valencia students and available 24 hours a day by calling (800) 878-5470. Free face-to-face counseling is also available.

**STUDENTS WITH DISABILITIES**
Students with disabilities who qualify for academic accommodations must provide a letter from the Office for Students with Disabilities (OSD) and discuss specific needs with the professor during the first two weeks of class. The Office for Students with Disabilities determines accommodations based on appropriate documentation of disability. The needs of students with appropriate documentation will always be supported in class.

**IMPORTANT DATES:**
- Full Term 5/7/2012 - 7/31/2012
- Students may withdraw themselves and receive a *W* up until *June 29, 2012*. Students may not withdraw themselves after that date.
- College Closed (Credit Classes Do Not Meet): May 28 and July 4
- Important dates and final exam schedule may be found at: [http://valenciacollege.edu/calendar](http://valenciacollege.edu/calendar)

**CELL PHONE POLICY**
Before entering my classroom, all cell phones *must* be silenced. **Ringing Phones are Not Permitted and May Result in Your Removal from the Class.**

**DISCLAIMER:** Changes to this syllabus may be made at any time at the discretion of the instructor.
## COT 2104 Summer 2012: Preliminary Schedule – Subject to Change

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<thead>
<tr>
<th>Date</th>
<th>Sections Covered</th>
<th>Assignment</th>
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<tbody>
<tr>
<td>Monday 5/7/2012</td>
<td>Course Introduction 0.1 Compound Statements 0.2 Proofs in Mathematics</td>
<td>0.1: 2,3,4,5,6,7 0.2: 1,2,3,8,9,12,14,16,17,20,24</td>
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<tr>
<td>Monday 5/14/2012</td>
<td>1.1 Truth Tables 1.2 The Algebra of Propositions 1.3 Logical Arguments</td>
<td>1.1: 1,2,3,6,8,11 1.2: 3,4,5,9,10 1.3: 3,4,5,8</td>
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<td>Monday 5/21/2012</td>
<td><strong>EXAM on Chapters 0-1</strong></td>
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<td></td>
<td>2.1 Sets</td>
<td>2.1: 1,2,3,4,5,6,7,9,11,14</td>
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<td>2.2 Operations on Sets</td>
<td>2.2: 1,2,3,4,5,6,9,10,12,15,16,21</td>
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<td>Monday 6/4/2012</td>
<td>2.3 Binary Relations 2.4 Equivalence Relations</td>
<td>2.3: 1,3,4,5,6,7,8 2.4: 1,5,7,8,9,13,18,21</td>
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<td>Monday 6/11/2012</td>
<td><strong>EXAM on Chapter 2</strong></td>
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<td>3.1 Function Terminology</td>
<td>3.1: 1,2,4,9,10,12,14,15,16,20,22</td>
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<td>Monday 6/18/2012</td>
<td>3.2 Inverses and Composition 3.3 One-to-One Correspondence and the Cardinality of a Set</td>
<td>3.2: 1,2,3,5,9,11,12,14 3.3: 2,4,6,9,10,12,13,15,19,18</td>
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<td>Monday 6/25/2012</td>
<td>4.1 The Division Algorithm 4.2 Divisibility and the Euclidian Algorithm</td>
<td>4.1: 1,4,5,6,7 4.2: 5,6,9,10,12</td>
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<td>Monday 7/2/2012</td>
<td>4.3 Prime Numbers 5.1 Mathematical Induction</td>
<td>4.3: 1,4,8,16,17,18,24 5.1: 1,4,5,8,9,12</td>
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<td>Monday 7/9/2012</td>
<td><strong>EXAM on Chapters 3 and 4</strong></td>
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<td></td>
<td>5.2 Recursively Defined Sequences</td>
<td>5.2: 1,2,5,8</td>
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<td>Monday 7/16/2012</td>
<td>5.3 Solving Recurrence Relations: The Characteristic Polynomial 5.4 Solving Recurrence Relations: Generating Functions</td>
<td>5.3: 1,2,3,4,6,8,10,11,15,20 5.4: 1,2,5,6,9</td>
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<tr>
<td>Monday 7/23/2012</td>
<td>6.1 The Principle of Inclusion-Exclusion 6.2 The Addition and Multiplication Rules 6.3 The Pigeonhole Principle</td>
<td>6.1: 1,3,5,6,9,11,17 6.2: 1,2,5,6,7,8,16,18,22 6.3: 1,3,4,7,12,14,25</td>
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<td>Monday 7/30/2012</td>
<td><strong>EXAM on Chapters 5 and 6 (6:30 pm – 8:00 pm)</strong></td>
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<td>FINAL EXAM (8:20 pm – 9:50 pm)</td>
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