

# ***CS 227: Discrete Structures I, Spring 2009 Semester***

## **Course Syllabus**

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### **Introduction and Overview:**

Mathematics can be divided into two realms, the realm of continuous entities and the realm of discrete entities. The digital computer, by the very nature of the way it is constructed, models the world as a collection of discrete rather than continuous objects. Discrete structures are abstract mathematical concepts that are employed in the description and representation of discrete objects, as well as of the relationships between them. It is vitally important that the modern computer scientist be well-versed in the various sub-branches of mathematics that are concerned with the use, treatment, and manipulation of discrete structures.

### **Summary Course Description:**

This course is the first of a two-semester sequence that deals with mathematical reasoning, including the notation and interpretation of formal logic, the use of formal logic to determine the validity of arguments, and the construction and evaluation of formal proofs, including the use of direct proof, proof by counterexample, mathematical induction, and indirect argument. The two-semester sequence is also concerned with combinatorial analysis, including the counting and enumeration of objects, and with discrete structures often used in the design or operation of computer systems, such as sets, relations, permutations, graphs, trees, and finite state machines. Additional topics covered include elementary number theory, sequences Boolean algebra and its use in designing, evaluating, and specifying digital logic circuits, the representation of numbers and the performance of arithmetic in digital computers, and set theory.

### **Course Outline (Semester 1):**

1. Compound Statements and their Logic
  - a. Propositional Logic
  - b. Predicates and Quantifiers
  - c. Conjunction, Disjunction, Negation, Implication
  - d. Hypothesis, Conclusion, Converse, Inverse, Contrapositive
  - e. Truth Values
  - f. Compound Statements and the evaluation of their truth/falsity
  - g. Tautologies
  - h. Logical Equivalence
  - i. Contradictions
  - j. The Universal Quantifier
  - k. The Existential Quantifier

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- l. Conditional Statements and their Negation
  - m. Rules of Inference
  - n. DeMorgan's Laws
  - o. Necessary and Sufficient Conditions
  - p. Order of Quantifiers
  - q. Formal Logic
  - r. *Modus Ponens* and *Modus Tollens* and their use in formal proofs
  - s. Mathematical Induction and Inductive Reasoning
  - t. Informal Language and Formal Language
  - u. Ambiguous Language
2. Number Theory
    - a. Properties of Rational Numbers
    - b. Divisibility
    - c. The Unique Factorization Theorem (Fundamental Theorem of Arithmetic)
    - d. The Quotient-Remainder Theorem
    - e. Proof by Contraposition
    - f. The Euclidian Algorithm
3. Sequences and Mathematical Induction
    - a. Formulae for Sequences
    - b. Sequence Notation I: Summation
    - c. Sequence Notation II: Multiplication
    - d. Sequence Notation III: Factorial
      - i. Summation of Consecutive Integers
      - ii. Summation of a Geometric Sequence
      - iii. Divisibility Properties
      - iv. Inequalities
      - v. The Well-Ordering Principle
4. Set Theory
    - a. Subsets
    - b. Operations on Sets
    - c. Partitions of Sets
    - d. The Power Set
    - e. Cartesian Product
    - f. Set Identities
    - g. Proof and Disproof of Set Properties
    - h. Functions Defined on Sets
      - i. One-to-One Functions
      - ii. Hash Functions
      - iii. Onto Functions
      - iv. Exponential Functions
      - v. Logarithmic Functions
      - vi. Inverse Functions
    - i. Composition of Functions
    - j. Cardinality
5. Counting
    - a. Dirichlet's "Pigeonhole Principle"
    - b. Permutations and Combinations
    - c. Basic Probability

## Course Objectives:

By the end of the course, the student should be able to:

- a. Make use of formal logic in analyzing compound statements and in evaluating their truth or falsehood.
- b. Understand and analyze quantified statements.
- c. Construct mathematical proofs.
- d. Understand and make use of number theory.
- e. Convert the representation of a number between decimal, binary, octal, and hexadecimal.
- f. Understand and make use of sets and of the principal set operations, including: set union, set intersection, set difference, and Cartesian product.

## Textbooks and Other Source Materials:

### **Main Course Textbook (REQUIRED):**

- (1) ROSEN, KENNETH H. (2007). *Discrete Mathematics and Its Applications Sixth Edition*. Boston, MA: McGraw-Hill Higher Education. QA39.3.R67 2007; 311—dc22; 2006012468; ISBN 978-0-07-288008-3, 0-07-288008-2 (hard copy : acid-free paper).  
*List Price \$148.05, available through Amazon.com for \$109.99 + S&H (as of 31 Oct 2008)*

### **RECOMMENDED:**

- (2) LIPSCHUTZ, SEYMOUR; & LIPSON, MARC LARS (2003). *Discrete Mathematics. Second edition*. Boston, MA: McGraw-Hill. QA162 .D57 2003; 510—dc21; 2002012231; ISBN 0-07-139877-5 (pbk. : alk. paper).
- (3) LIPSON, MARC; & LIPSCHUTZ, SEYMOUR (2000). *Schaum's Outline of Theory and Problems of Probability. Second Edition*. Boston, MA: McGraw-Hill. QA273.25 L57 2000; 519.2—dc21; 99059283; ISBN 0-07-135203-1.
- (4) LIPSCHUTZ, SEYMOUR (1992). *Two Thousand Solved Problems in Discrete Mathematics*. Boston, MA: McGraw-Hill. QA43 .L666 1992; 510/.76—dc21; 91014108; ISBN 0-07-03803-7.

## Instructor:

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## Course Practices:

**Attendance Policy, and Relationship of Course Sessions to Readings:** Class sessions will cover *some* of the material in the readings, but will *also* include some material *not* covered by the readings. Therefore, students **must** not only do all of the readings, but must **also** attend **all** classes. Furthermore, announcements are sometimes made in class of new or changed course policies, requirements, modifications to assignments, etc. Information provided in such announcements might not appear anywhere in the course documentation. This adds to the importance to the student of being present in each and every class.

Normally, there are only three acceptable grounds for a student's missing a class: (1) grave medical or (2) serious personal problems affecting the student him/herself, or in some cases affecting a member of the student's immediate family<sup>1</sup>. The other acceptable excuse for a student's missing a class is (3) *force majeure* (overpowering force due to an unexpected and uncontrollable event). An example of *force majeure* is the occurrence of a flat tire or of a motor vehicle accident involving your vehicle while you are traveling to class. If you want to claim exemption on one of these three grounds, be prepared to submit evidence (*e.g.*, a note from a licensed physician on the physician's stationery, or a copy of an official police accident report).

Attendance is normally taken at every class. Your presence in class does *not* get factored *directly* into the grading process. Why, then, do I take attendance? The purpose is three-fold: (i) attendance data sometimes provide me with advance information that a student may be experiencing academic difficulty because of medical or personal problems, or for some other reason. In addition, (ii) I may also consult attendance records in deciding how much I am willing to extend myself in providing help should you get into academic difficulty during the semester. You are in a much better position to get a "break" if you have been conscientiously attending class. Note, however, that **I do reserve the right to reduce a student's grade if he/she either has an excessive total number of unexcused absences (four or more), or is absent on the class day immediately before or immediately after an official university holiday, or whose classroom behavior is disruptive.**

Note that if you do miss out on a class, it is **your** responsibility to find out what we covered in class, as well as what announcements might have been made. It is also your responsibility to obtain the missed material. "I wasn't in class when you made that announcement" is **not** an acceptable excuse for your failure to comply with any directives issued in class. Please see the companion to this section entitled, "Policy Regarding Classes Missed by Students".

**E-mail on Course-Related Matters:** All E-mail messages related to the course should be identified by a Subject header that begins by identifying the course and section about which the body of the message is concerned. The complete Subject header must be of the form: *CS-227-n {additional subject description}*, where *n* is the section number, and additional subject identification is appended following the course and section numbers.

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<sup>1</sup> Immediate family, as defined for the purpose of this policy, consists of your father/grandfather, mother/grandmother, sister, brother, spouse, or fiancé to whom you are formally engaged. Please NOTE that as far as **I** am concerned, your girlfriend/boyfriend is **not** a member of your immediate family.

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**Format for Submitted Homeworks:** Submitted homeworks are ***required*** to be of the following form in order for you to receive credit:

- (1) Your name must appear ***legibly*** in the top left corner of the first page and of all odd-numbered pages.
- (2) On the first page *only*, following your name, you must write the course and section numbers, in the form: ***CS-450-n***, where ***n*** is the section number.
- (3) Next, there should be a declaration of compliance with the JMU Honor Code, ***including your signature***.
- (4) On the first page *only*, in the center of the page near the top, you must prominently write: ***Assignment # \_\_\_\_\_*** (fill in the assignment number); ***Chapter # \_\_\_\_\_*** (fill in the chapter number).
- (5) Each numbered problem must start on a new line, with the number of the problem clearly identified at the beginning of the line.
- (6) Skip two lines or more after each problem.
- (7) Write your solutions ***legibly***.
- (8) Fasten the pages together by stapling them in the upper left-hand corner. Paper clips or dog-earing of the pages is ***NOT*** acceptable *in lieu of* a staple. Please note that if you cannot afford to buy a stapler, or if you forget to bring your stapler with you, there are several staplers available for student use in the CISAT Copy Center in Room 1002. There is no charge for use of the Copy Center's staplers.
- (9) Bring the completed assignment in to class **on the date that it is due**, and be prepared to submit it at the beginning of class.

**Grading of Tests and Assignments, and the JMU Honor Code:** You will eventually be assessed (not given) an overall course grade. The course grade will be based principally upon your performance on quizzes, exams, homework assignments, projects, etc. Integrity of the grading process requires that you be graded on the basis of ***your own work***, and not on someone else's. Yet, sometimes you may get stymied and not be able to complete an assignment on your own. ***If you find it necessary to obtain help from someone else in completing your assignment, you are required to indicate that by clearly marking it on your assignment.*** Thus, if one of your colleagues contributes a line of code to your computer program, you should plainly mark that via a comment inserted into the text of the program, as in the following example:

```
//Hieronymous Johnson kindly contributed the following line of code to my program:  
for (int i=0, k=4-l; i<10; k=Math.abs(4-++l+(i>4?1:0)));2
```

Similarly, non-programming assignments should be clearly footnoted or annotated to indicate where someone else's help contributed to the product. In the absence of a clear annotation in your submitted assignment, you will be assumed to be the sole author of all work that you submit. Should that turn out not to be the case, it will be accounted as an honor code violation and will be dealt with severely. Details of the JMU Honor Code are to be found at: <http://www.jmu.edu/honor/>

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<sup>2</sup> I am indebted to Prof. David Brunner for contributing the coding example shown above.

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**Honor Code:** The JMU Honor Code specifies that every assignment, whether written or electronically submitted by a student, is submitted pursuant to the Honor Code, and **must contain a declaration** stating that “This work complies with the JMU Honor Code.”, together with your signature. For **this course**, it is required that you place this signed declaration **on the first page** of your assignment. If the Honor Code declaration is not included *at the time that the assignment was submitted*, your grade for that assignment will be a zero. It is **your** responsibility to see to it before submitting your work that your signed Honor Code declaration is easily found on the first page of your assignment. I can **not** be bothered chasing after you to get you to add your Honor Code declaration afterwards.

**Programming Projects and Major Assignments:** Programming projects and major assignments, such as a term project or an essay (“paper”) must be machine-generated (i.e., not hand-written), and must be submitted **both** in hard- **and** in soft-form.

**Format for Submission of Programming Projects and Major Assignments:** Multiple pages of hard-copy must be **stapled** together<sup>3</sup>, and **both** hard and soft copies must have, in the upper left corner of the first page:

- (a) your name
- (b) course number
- (c) section number
- (d) semester (e.g., Fall 2001)
- (e) date of submission, and
- (f) Honor Code declaration, with your signature.

Please note that I have no trouble remembering my own name. Therefore, you do not need to write my name on your homework assignments.

**Content of Submitted Work:** All written work should be thoroughly professional in accordance with the highest standards. Your writing should be clear, should comply with the rules of grammar of the language in which it is written (for most of your courses taken with me, this will be English), as well as with good writing practice, and should be correctly spelled and punctuated and free of both slang and jargon.

**Late Submissions Policy:** All work is due at the designated date and time. **Normally, I do not accept late submission of homework.** In order to reduce the need for a student to provide explanations or excuses for not submitting assignments on time or for missing a quiz, I drop the lowest homework grade and the lowest quiz grade.

## Grading Policy:

**Overall Meaning/Definition of Grades:** A grade of **A**, either on an individual assignment or for the entire semester, indicates work that is truly outstanding in the opinion of the instructor, demonstrating excellent mastery of the material covered. A grade of **B** indicates very good work, above the instructor’s level of expectation for an undergraduate student. An undergraduate grade of **C** indicates work that is satisfactory, although not outstanding, demonstrating sufficient comprehension of the material to merit the student’s receiving credit for achieving the course objectives. A grade of **D** indicates work that is less than satisfactory at the undergraduate

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<sup>3</sup> If you do not own a stapler, there is one available for student use in the Copy Center (HHS Room 1002).

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level, but nevertheless sufficient to merit receipt of undergraduate credit for the class. A grade of *F* indicates work far below the minimum level considered to be satisfactory, demonstrating insufficient achievement in the skills or level of knowledge required even at the undergraduate level.

**Extra-Credit Opportunities.** Grades are based only on assignments given to every student in the class. Opportunities to earn extra credit may possibly be announced to the entire class at various times during the semester, but extra-credit assignments will NOT be custom-crafted for the sake of an individual student. Your best strategy is to learn the course material by conscientiously studying and doing your assigned homeworks throughout the semester. If you wake up near the end of the semester and suddenly realize that you are in trouble, there may not be anything that you can do.

**Extra Tutorial Assistance:** I will be pleased to provide extra help in most instances to any student who requests it. However, the student who needs help must **both**: (i) take the initiative on his/her own to seek me out, **and** (ii) seek help in a timely manner and not wait until the last minute, when the examination or assignment due date is already imminent. You must also understand that I am willing to help when your own assiduous efforts to learn the material prove to be inadequate, but I **cannot** provide tutorial assistance to a student who cannot find the time to do the assigned readings and homeworks, nor for a student who is “too busy” to come to class.

**Quizzes and Examinations:** There will be one in-semester examination (mid-term), and a final examination. In addition, there will be a relatively brief in-class quiz given bi-weekly (*i.e.*, every two weeks) throughout the semester, except for the week when the Mid-Term Examination is given. The convention for the administration of the weekly quiz is that it is given on the last class day of the week. If there is only one day of class scheduled for a particular week, then that is the day when that week’s quiz is given. The quizzes, as well as the Mid-Term and Final Examinations, will be based **both** upon the reading assignments, *regardless* of whether or not the readings were covered in class, that were due up to **and including** the date of the quiz or examination, **and also** upon the material covered in class up to the moment of the quiz or examination, *regardless* of whether or not the assigned readings also cover the same material. *Occasionally* a student may have a bad day and will therefore not perform on a quiz up to his/her level of knowledge. Alternatively, circumstances may come up either that prevent him/her from covering the day’s assignment on time, or that preclude his/her attendance on the particular day when a quiz is given. In any of these cases, this will result in a quiz grade below the norm for that student, or in an automatic grade of zero if the quiz is not taken at all, regardless of reason. To avoid excessive anxiety on the part of a student who experiences a rare bad day, and to avoid having to take up students’ and instructor’s time with the giving and adjudication of explanations and excuses, as a matter of policy the lowest one quiz grade for each student will be dropped. Students are warned not to use up their opportunity frivolously (e.g., don’t miss class without grave cause). Preserve your allotment of one excused low quiz grade for circumstances of real need.

**Class Participation:** Vigorous student participation in class discussion makes for a much more lively and interesting class for all. To encourage participation in class discussion, the grading mechanism includes the opportunity for the student to earn a reward (details given below) for participating **both vigorously and constructively** in class. Note that your mere attendance can **not** be considered to be “class participation”, and will **not** be rewarded with class participation points. Attendance in class is mandatory, and therefore you will be given no rewards merely for attendance. However, your vigorous and constructive participation in class discussion will certainly make the class more interesting both for me and for your fellow students as well as for yourself, and this therefore can earn you “class participation points”, which can *possibly* result in enhancing your grade, as well.

**Assignment of Grades:** Makeup of overall grade for the semester will be as follows: First, a numeric score will be calculated based upon the student’s performance on all the examinations, on the quizzes and homeworks,. The basis for calculating the numeric score is:

Collected Homeworks:	25 pts
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In-class Quizzes:	25 pts
In-semester (mid-term) Examination	20 pts
Final Exam:	30 pts
TOTAL:	100 pts
Opportunities that may be announced, and participation in class discussion can earn extra points :	
	≤10 pts

After the numeric scores have been determined, letter grades will be assigned, based upon the distribution of the numeric scores. I make **no** commitment in advance regarding the letter-grade equivalent of specific numeric grades. The standard cutoff scores for grades are: 90 for **A**, 80 for **B**, 70 for **C**, and 60 for **D**. However, I reserve the right to adjust the cutoff points in accordance with my judgment after studying the actual distribution of numeric scores.

*Please note that should the university be shut down during the scheduled time for the final examination announced in the Course Map, then I expect to determine the course grades on the basis only of the 70 points of homeworks, quizzes, and the mid-term examination score. Final examination missed because of university closure will **NOT** be rescheduled.*

**Enhancement of Grades for Vigorous Class Participation:** An initial assignment of grades is made to all members of the class as described above. After the initial assignment of grades has been made, additional points will be dispensed to those students who participated vigorously and effectively in class discussion. This may result in improvement of the grades for such students. Thus, non-participation will **not** lower anyone's grade, but high-quality participation may **possibly** raise it.

**Reduction of Grade because of Problem in Attendance or Behavior,** if deemed appropriate, will also be accomplished after the crude numeric scores have been computed for the entire class.

**Legibility and Clarity-of-Communication Requirements for Quizzes, Examinations, Homeworks, and Term Papers:** It is up to you, the student, to demonstrate to my satisfaction that you have mastered the course material. I know that at the time of your birth you knew nothing about the subject matter of this course. If a change has occurred between then and now, then *you* must demonstrate that this change has taken place and that you have, indeed, mastered the course subject matter. Therefore, your writing and drawing must be clear and unambiguous, and your answer should be obviously correct on its own, without benefit of any *post hoc* verbal explanation that you may provide of your answer. What this means is that:

- (i) your handwriting must be legible to the instructor;
- (ii) you must, yourself, bear the burden of choosing the correct words and technical terms that answer the question;
- (iii) your drawings must be neat, technically correct, and properly labeled;
- (iv) your sentences must be properly structured, and paragraphs must be correctly and logically organized;
- (v) you must thoroughly address **all** the specific issues raised by the question; and
- (vi) for multiple-choice, fill-in-the-blank and other short-answer type questions, you are responsible for marking the answer **in the correct place** on your answer sheet. The grader will **not** be responsible for searching for the correct answer in other places, nor can credit be given after the fact for notations that you made on your question booklet that were not reflected in the answer marked on your answer sheet. Be careful, and check what you are doing. It can be very frustrating for student and instructor alike when a student who knows the material has to take a lower grade than he or she could have earned, because of the student's carelessness in marking the answer properly on the answer sheet. Nevertheless, Computer Science, like

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airline piloting, is notoriously unforgiving of mistakes, and minute attention to detail is one of the personal properties that the Computer Science faculty tries to inculcate in our students.

**Errors in Grading:** Unclear answers will be marked **wrong**. Instructors are human and sometimes make mistakes, too. You are entitled to complain politely after class if you honestly feel that your answer is both clear and correct, but was misunderstood at grading time by the instructor or by the grader. If the instructor agrees that a mistake was made, then your grade will be cheerfully corrected.

### Rules for Quizzes and Examinations:

- (1) **No calculators** (except as may be announced), **no books, no notes**.
- (2) The **JMU Honor Code** must be scrupulously observed.
- (3) All work **must** be shown on your examination paper. You will certainly be given extra paper if you ask for it, but you must hand in any extra sheets of paper that you use together with the quiz or examination for which you used them.
- (4) You must provide exactly ONE answer to each test question. In the event that you should provide more than one answer, the answer that is **wrong** is the one that will be graded.
- (5) All quizzes and examinations **must** be taken at the scheduled time. If you miss the scheduled examination, you are responsible for providing **timely** documentation to support a medical or other *bona fide* emergency to avoid getting a grade of zero for the examination. Medical exemption requires certification from a licensed medical practitioner or facility. The documentation must be provided on the practitioner's letterhead and must be dated and signed by the practitioner, and must clearly certify the time range over which you were incapacitated. The practitioner's telephone number must also appear on the document. The diagnosis, in the case of a medical problem, is not my business and therefore does **not** need to be included.

**Note** that there is a deadline for submitting your documentation to support medical or other excused absence. The deadline is one calendar week after you return to class.

## Homework Assignments:

**Educational Philosophy:** There are three ways for a student to learn complex technical subject matter, such as you will encounter in this course. First is by reading. Second is by coming to class and both watching and listening **interactively**. Third is by working selected problems and examples. This course has been carefully designed to integrate at least the first two, and perhaps all three modes of teaching and learning. There may be some material covered in the reading assignments that will **not** also be covered in the classroom, and there is other material **not** covered in the reading assignments that will be covered **only** in the classroom. I will hold you responsible **both** for the content of all assigned readings, **whether or not covered in class, and** also for all classroom material, **whether or not covered in the assigned readings**. To assist you in reviewing both the readings and the classroom materials, and in preparation for the examinations, review questions covering the main points may be provided, and in some cases answers as well. Students are **well advised** to answer review questions in writing, and, where applicable, also to work out solutions to assigned problems in detail before peeking at the answers. The reason for this recommendation is that in first crafting your own answers or your own solutions you will be much more seriously stress-testing your own level of comprehension of the material. Then, when you compare your own answers with those provided to you, you will gain much better insight into any deficiencies in

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comprehension that you may have. If you look at the answers first, it will go much faster for you, but you will suffer in the depth of learning that you will attain. I treat you as adult by providing the answers up front in some cases and by trusting you to use good judgment in working through the problems before consulting the answers. Please don't disappoint me.

**Types of Assignments:** Details of homework assignments for this course are specified in a separate document. In general, a homework assignment may have one or more of four components: readings, review questions, practical exercises, and reports (oral and/or written). Readings **must** be done on time, so that you will be properly prepared for, and get full benefit from the class. Review questions are also extremely important for you to answer prior to the class when they are due. In most cases, your answers to review questions will *not* be collected and graded, but these questions are excellent preparation both for a brief quiz that you may possibly encounter when you come to class and for the lengthier scheduled examinations. Readings, review questions, practical exercises, and reports must all be completed no later than the scheduled due date and must be ready for submission on the due date at the beginning of class. Some or all of the homeworks will be collected. These will be graded **not** on the basis of whether the answers are correct, but merely on the basis of whether the homework was done completely and conscientiously.

**Group Projects:** One or more projects may be assigned during the semester. Any assigned projects, may be assigned either as individual projects or as Group Projects. Any project **assigned** as a group project **must** be done as a group project. Even if you prefer to work by yourself and are willing to do by yourself all the work required for the project, you must nevertheless join a group to work on any project designated as a group project, and you must also participate as a full partner with your fellow-students in the group. Group members are **advised** to exchange **both** telephone numbers **and** E-mail addresses immediately upon formation of the group, to facilitate inter-member communication (this is a *recommendation*, not a requirement). Each member of the group is responsible for cooperating fully with the other members of the group, and for doing his/her full agreed-upon share of the work *in concert with* the rest of the group. For every group project assignment, the group is required to deliver, along with their written project report, a written **Work Breakdown** statement, indicating precisely what contribution each member of the group made to the overall project.

## Policy Regarding Classes Missed by Students:

In the university environment, there is an implied contract between students and faculty. You (students) expect me (faculty) to come to class. I, as a faculty member, also expect each of my students to come to every class. Occasionally, circumstances beyond your control may force you to miss a class. If you must miss an occasional class, I trust you, as a responsible adult, to do so only for adequate reason. Therefore, you don't need to seek my permission before skipping a solitary class, nor do you need explain to me afterwards why you were absent. Please note, however, that I do look particularly askance at students who miss the last class prior to a vacation period and/or the first class after vacation. The university is very generous with scheduled vacations, and I expect you to make do with the allotted vacation days and **not** to take for yourself an extension of your vacation period beyond what the university has generously scheduled for all students and faculty. If they are purchased sufficiently in advance, airline tickets can usually be procured for travel *during* the scheduled vacation period,. In the event that you are unable to obtain a ticket without committing yourself to straying into the time scheduled for classes, then I invite you to make alternate plans and to spend your vacation closer to Harrisonburg.

If you have missed the class for good and valid reason, nevertheless you **are** responsible for making up the work you missed, as well as for complying with any announcements, directives, or instructions that might have been

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issued during the class that you missed. Therefore, it is up to **you** both to find out what was covered or announced, **and** to make up in a timely fashion any missed work.

You would be wise to prepare, as early as the very first day of the semester, for the possible occurrence of sudden brief acute illness (tummy ache, head ache, etc.), or of other, non-medical emergencies, such as a flat tire, traffic jam, family emergency, or the like. I suggest that you exchange phone numbers and E-mail addresses on the **first day of class** with three or more of your classmates. If at all possible, give notice to one of your colleagues prior to the class you will miss. Follow up as soon as possible after the missed class, so that you will be able to stay abreast of what is happening in class. Also, if you know in advance that you must miss a class, you should arrange to have someone hand in for you any assignments you may have done that are due that day. If you did not make advance arrangements, then it is even more important both that you follow up rapidly to find out what you missed and that you make up for missed work.

Please do **not** send me E-mail, either asking in advance of the class you must miss what do I intend to cover, or querying me subsequently to the class on what did I cover. I teach many students each semester, and I just don't have the time to answer a blizzard of "What will I miss?" and "What did I miss?" E-mails. In the fortunately rare case that a student encounters a serious health problem or an issue in his/her personal or family life that spans several consecutive classes, it is my experience that I have almost always been able to make a special accommodation to try to help the student through the crisis, and I will certainly make every effort to do so in the future, as well. But I must insist that you take care of the onesies and twosies on your own.

## Class Meetings:

Classes meet during the Spring 2007 semester in ISAT/CS Room 243 on Tuesdays and Thursdays from 0930 to 1045 hrs (Section 1), and from 1100 to 1215 hrs (section 2).