|  |  |  |
| --- | --- | --- |
| **Course Number and Name: MTH207, Discrete Structures I** |  | **MTH207** |
| **Class Time and Location: MWF 10:00-10:50, BB905** |
| **Credits and Contact Hours: 3 Credits, 3 sessions per week** |  | |
| **Semester: Fall 2014** |  | |

Instructor name: Samer Habre

**Email: shabre@lau.edu.lb**

**Office: Nicol 307C**

**Office Hours: MWF: 9:00 – 10:00 & 12:00 – 1:00 (or by appointment)**

**Current Catalog Description**

This course covers the foundations of discrete mathematics as they apply to computer science. The course is an introduction to propositional logic, logical connectives, truth tables, normal forms, validity, predicate logic, universal and existential quantification, and the limitations of predicate logic. In addition, the following topics are covered: the number system, the Euclidean algorithm, proof techniques, mathematical induction, counting arguments, permutations and combinations, discrete probability and binomial coefficients, sets, functions, relations, matrices, and Boolean Algebra.

Course Prerequisite/Co-requisite: none

**Textbook and References: Discrete Mathematics and Its Applications, (7th edition)**, by *Kenneth H. Rosen, Mcgraw-Hill*

**Course Type: required**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |

**Course Learning Outcomes**

Students who pass this module should have the following skills:

* Do truth tables
* Do a proof by induction
* Identify equivalence relations
* Be familiar with Boolean algebra
* Be familiar with various counting techniques such as the Pigeonhole Principle
* Represent any real number in any radix
* Be familiar with the definition of countable and uncountable sets

Course Grading and Performance Criteria

|  |  |
| --- | --- |
| 3 exams  Exam 1: October 20, 2014  Exam 2: November 19, 2014  Exam 3: December 17, 2014 | 70% |
| Final exam (cumulative) | 30 % |

**Topics Covered in the Course**

|  |  |  |
| --- | --- | --- |
| **Sections** | **Topics** | **Sessions[[1]](#footnote-1)** |
| **1.1 , 1.3** | Propositional Logic | 4 |
| **1.4 , 1.5** | Quantifiers | 4 |
| **1.8 , 1.9** | Proof Strategies | 3 |
| **2.1 , 2.2 , 2.3** | Sets and Functions | 2 |
| **2.4 , 2.5** | Sequences | 3 |
| **2.6** | Matrices | 1 |
| **3.2, 4.1** | Growth of Functions; | 2 |
| **4.3, 4.4** | Primes and GCD+ congruence | 2 |
| **5.1 , 5.2** | Induction and Recursion | 4 |
| **6.1 , 6.2** | Basics of Counting+ Pigeonhole Principle | 3 |
| **6.3** | Permutations and Combinations | 1 |
| **7.1 , 7.2** | Discrete Probability | 3 |
| **9.1** | Relations | 1 |
| **9.3, 9.5** | Representing relations + Equivalence relations | 4 |
| **9.6** | Partial Ordering | 2 |
|  |  | Total = 40 |

**Policy on Cheating and Plagiarism**

Students caught cheating on an exam receive a grade of zero on the exam in their first cheating attempt and receive a warning. Students caught cheating for the second time will receive a grade of “F” in the course and another warning. Plagiarism on assignments and project work is a serious offense. If plagiarism is detected, a student will be subject to penalty, similar to the cheating case, which ranges from receiving a zero on the assignment concerned to an “F” in the course in addition to a warning.

#### **Attendance Policy**

1. Students are held responsible for all the material presented in the classroom, even during their absence.
2. Students can miss no more than the equivalent of five weeks of instruction and still receive credit for that course.
3. Instructors have the right to impose specific attendance regulations in their courses, provided that the above-stated limit of absences is not exceeded, and the minimum number of absences allowed is no fewer than the equivalent of two weeks of classroom instruction, after the Drop and Add period.
4. Instructors will inform the Departments Chairperson and the Guidance Office, of any prolonged unexplained absence.
5. Students who exceed the allowed number of absences must withdraw from the course; otherwise, the course grade will be recorded as “F” (NP).

**Withdrawal policy**

1. 1. A student who withdraws after the Drop/Add period and by October 22, 2014 will obtain a “WI” on that particular course. The student may process such request directly through the Registrar’s Office. WI is equivalent to early withdrawal.
2. A student who withdraws between October 23 and November 25, 2014, will receive either a “WP” or a “WF”. “WP” or “WF” will be determined by the instructor based on the achieved academic performance in that course till the time of withdrawal. WP is equivalent to Withdraw/Pass while WF is withdraw/Fail.
3. The “WI” and the “WP” will not count as a repeat; whereas the “WF” will count as a repeat.

1. This is a tentative table; check Blackboard Learn Calendar for updates [↑](#footnote-ref-1)