



**DEPARTMENT OF SCIENCE**

**COURSE OUTLINE – WINTER 2017 CS2720 (A3)**

Formal Systems and Logic in Computing Science 3 (3-1-1.5) 15 weeks, 82.5 Hours

**INSTRUCTOR:** Dr. Brian Redmond      **PHONE:** 780-539-2093  
**OFFICE:** J206      **E-MAIL:** bredmond@gprc.ab.ca  
**OFFICE HOURS:** TBA

**CALENDAR DESCRIPTION:** An introductory course to present the tools of set theory, logic and induction, and their use in the practice of reasoning about algorithms and programs. Basic set theory. The notion of a function. Counting. Propositional and predicate logic and their proof system will be studied. Inductive definitions and proofs by induction will be covered along with program specification and correctness.

**PREREQUISITE(S)/COREQUISITE:** 1000-Level CST course

**REQUIRED TEXT/RESOURCE MATERIALS:** Mathematical Structures for Computer Science (7E) by Judith L. Gersting.

**DELIVERY MODE(S):**

|           |    |      |             |      |
|-----------|----|------|-------------|------|
| Lectures: | A3 | T, R | 10:00-11:20 | J227 |
| Lab:      | S1 | M    | 2:30-3:20   | J227 |
| Lab:      | L1 | M    | 3:30-4:50   | J101 |

**COURSE OBJECTIVES:** This course provides an introduction to: set theory, logic and induction, and their use in the practice of reasoning about algorithms and programs. The main topics covered are: Basic set theory, the notion of a function, counting, propositional and predicate logic. Inductive definitions and proofs by induction will be covered along with program specification and correctness.

**LEARNING OUTCOMES:** To demonstrate basic knowledge of set theory, logic and induction, and their use in the practice of reasoning about algorithms and programs. To demonstrate a conceptual knowledge of the concepts and principles involved.

**TRANSFERABILITY:** Please consult the Alberta Transfer Guide for more information ([www.albertatransfer.com](http://www.albertatransfer.com))

**\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability**

**EVALUATIONS:**

|             |     |  |
|-------------|-----|--|
| Assignments | 15% |  |
| Quizzes     | 15% |  |
| Midterm     | 30% | TBA  |
| Final Exam  | 40% | April 17-27 inclusive (including Saturdays and evenings) |

**GRADING CRITERIA:** Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**. This means **DO NOT GET LESS THAN “C-” IF YOU ARE PLANNING TO TRANSFER TO A UNIVERSITY.** And less than a C- may not be accepted as a prerequisite at the college and elsewhere.

| Alpha Grade | 4-point Equivalent | Percentage Guidelines | Alpha Grade | 4-point Equivalent | Percentage Guidelines |
|-------------|--------------------|-----------------------|-------------|--------------------|-----------------------|
| A+          | 4.0                | 95-100                | C+          | 2.3                | 66-69                 |
| A           | 4.0                | 90-94                 | C           | 2.0                | 62-65                 |
| A-          | 3.7                | 85-89                 | C-          | 1.7                | 58-61                 |
| B+          | 3.3                | 80-84                 | D+          | 1.3                | 55-57                 |
| B           | 3.0                | 75-79                 | D           | 1.0                | 50-54                 |
| B-          | 2.7                | 70-74                 | F           | 0.0                | 00-49                 |

**COURSE SCHEDULE/TENTATIVE TIMELINE:**

|                   |                |             |                                     |
|-------------------|----------------|-------------|-------------------------------------|
| Week 1            | Jan. 5         | Intro.      | Thurs. Jan. 5 first day of class    |
| Week 2            | Jan. 9-13      | Chapter 1-3 |                                     |
| Week 3            | Jan. 16-20     | Chapter 1-3 |                                     |
| Week 4            | Jan. 23-27     | Chapter 1-3 |                                     |
| Week 5            | Jan. 30-Feb. 3 | Chapter 1-3 |                                     |
| Week 6            | Feb. 6-10      | Chapter 1-3 |                                     |
| Week 7            | Feb. 13-17     | Chapter 1-3 |                                     |
| Week 8            | Feb. 20-24     |             | Winter Break                        |
| Week 9            | Feb. 27-Mar. 3 | Chapter 4-5 | <b>Tues. Feb. 28 – Midterm Exam</b> |
| Week 10           | Mar. 6-10      | Chapter 4-5 | Tues. Mar. 7 last day to withdraw   |
| Week 11           | Mar. 13-17     | Chapter 4-5 |                                     |
| Week 12           | Mar. 20-24     | Chapter 6-8 |                                     |
| Week 13           | Mar. 27-31     | Chapter 6-8 |                                     |
| Week 14           | Apr. 3-7       | Chapter 6-8 |                                     |
| Week 15           | Apr. 10-14     | Chapter 6-8 | Wed. Apr. 12 last day of class      |
| Final Exam Period | Apr. 17-27     |             |                                     |

**STUDENT RESPONSIBILITIES:** Students are responsible for all lecture material, labs and readings. Students are expected to practice the material by doing problems from the textbook. Assignments are not accepted if handed in late. If the midterm is missed due to illness the weight will be put on the final (i.e. the final will be worth 70%). If the final is missed due to illness it will be deferred (see calendar for

information). A doctor's note and a phone message or email will be required in both cases.

Cellphone use is not permitted in the classroom. This includes texting. Please turn off and put away your cellphone during class. You may be asked to leave the classroom if using a cellphone.

**No recording of any kind is allowed in the class, seminar or during consultation with the instructor.**

**STATEMENT ON PLAGIARISM AND CHEATING:**

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Admission Guide at <http://www.gprc.ab.ca/programs/calendar/> or the College Policy on Student Misconduct: Plagiarism and Cheating at [www.gprc.ab.ca/about/administration/policies/\\*\\*](http://www.gprc.ab.ca/about/administration/policies/**)

\*\*Note: all Academic and Administrative policies are available on the same page.