DEPARTMENT OF SCIENCE

COURSE OUTLINE – WINTER 2020 CS2720 (A3)

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

INSTRUCTOR:	Franco Carlacci	**PHONE:**	780-539-2091
OFFICE:	C422	**E-MAIL:**	fcarlacci@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:

- Al Doerr, Ken Levasseur: Applied Discrete Structures, 3rd Edition – version 5 (2018)
- Paul Zimmermann et al: Computational Mathematics with SageMath

DELIVERY MODE(S): Lecture/Lab/Seminar

COURSE OBJECTIVES: This course is an introduction to discrete mathematics for reasoning about algorithms and programs. The main topics covered include: propositional and predicate logic, proofs, basic set theory, algorithms, induction and recursion (along with program correctness), functions and relations, and Boolean algebras.

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 implement these concepts by writing simple programs in the programming language SageMath/Python/Prolog.

TRANSFERABILITY: Please consult the Alberta Transfer Guide for more information (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	10%
Labs	10%
Quizzes	15%
Midterm	20%
Final Exam	45%

PLEASE READ THE FOLLOWING AND MAKE SURE YOU UNDERSTAND THAT:

There is a 30% penalty for late (less than 4 days) assignment. Assignments that are more than 4 days late will not be accepted. **I will be enforcing this rule with no exception.**

All work must be submitted via Moodle; no emailed assignments will be accepted**.**

Once an assignment has been marked and a grade assigned, I will not be entertaining any request to re-mark it unless a mistake has been made by me.

Exams will be written as scheduled. No rewrites will be given. If there is an excusable absence, the weighting of the missed exam will be added to the final exam weighting. If the absence is not excusable, a grade of 0% will be given. Absences due to a medical emergency must be supported by a physician's letter.

NOTE: YOU MUST GET A PASSING GRADE ON THE TESTING COMPONENT (IE. QUIZZES, MIDTERM, FINAL) OF COURSE FOR YOUR ASSIGNMENT MARKS TO COUNT TOWARDS YOUR FINAL GRADE.

GRADING CRITERIA:

Please note that most universities will not accept your course for transfer credit **IF** your grade is **less than C-**.

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

COURSE SCHEDULE/TENTATIVE TIMELINE:

Week 1	Jan. 6	Chapter 1	January 6 -- first day of classes
Week 2	Jan. 13	Chapter 1	
Week 3	Jan. 20	Chapter 2	
Week 4	Jan. 27	Chapter 2	
Week 5	Feb 3	Chapter 3	
Week 6	Feb. 10	Chapter 3	
Week 7	Feb 17		Winter Break (no classes)
Week 8	Feb. 24		
Week 9	Mar 2	Chapter 6	
Week 10	Mar. 9	Chapter 6	March 5 -- last day to withdraw
Week 11	Mar. 16	Chapter 7	
Week 12	Mar. 23	Chapter 7	
Week 13	Mar. 30	Chapter 8	
Week 14	Apr 6	Chapter 13	
Week 15	Apr 13	last day of classes	
Final Exam Period	Apr. 15-27		

STUDENT RESPONSIBILITIES: Regular attendance and participation (including homework) is required for the successful completion of this course. Assignments must be handed in on time, and quizzes/exams must be written on the days announced in class or on moodle. If an emergency prevents a student from writing a test/exam on the scheduled day, the student must contact the instructor immediately to make other arrangements. Otherwise, the student will receive a zero grade for that component of the course.

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/**

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