



UNIVERSITY OF CALGARY
FACULTY OF SCIENCE
DEPARTMENT OF COMPUTER SCIENCE
COURSE OUTLINE

1. **Course:** CPSC 518, Introduction to Computer Algebra -- Fall 2017

Lecture 01: (TR, 12:30-13:45 in SS117)

Instructor Name	Email	Phone	Office	Hours
Wayne Michael Eberly	eberly@ucalgary.ca	(403) 220-5073	ICT 613	TR 11:00-11:50

Course Site:

D2L: CPSC 518 L01-(Fall 2017)-Introduction to Computer Algebra

Department of Computer Science: ICT 602, 403 220-6015, cpsc@cpsc.ucalgary.ca

2. **Prerequisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

CPSC 413 and one of MATH 211 or 213.

Computer Science 491 and Pure Mathematics 315 are recommended as preparation for this course.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %
Assignments (Best 3 out of 4)	40%
Midterm Test	25%
Final Exam	35%

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a percentage score. The student's average percentage score for the various components listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows;

Letter Grade	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum Percent Required	95	91	86	81	76	71	66	62	58	55	50

4. **Missed Components of Term Work:**

The regulations of the Faculty of Science pertaining to this matter are found in the Faculty of Science area of the Calendar in [Section 3.6](#). It is the student's responsibility to familiarize himself/herself with these regulations. See also [Section E.3](#) of the University Calendar

5. **Scheduled out-of-class activities:**

The following out of class activities are scheduled for this course:

Midterm, scheduled for 120 min on Wednesday November 15 2017 at 6:00 pm SB 144

6. **Course Materials:**

Optional Textbook(s):

von zur Gathen and Gerhard, Modern Computer Algebra, Cambridge University Press

Lectures slides will be available on D2L.

7. Examination Policy:

One double-sided letter-sized page of notes is allowed for each exam. No other aids permitted.

Students should also read the Calendar, [Section G](#), on Examinations.

8. Approved Mandatory and Optional Course Supplemental Fees:

There are no mandatory or optional course supplemental fees for this course

9. Writing across the Curriculum Statement:

See Section E.2 of the University Calendar.

10. Human studies statement:

Students will not participate as subjects or researchers in human studies.

11. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- a. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties.
- b. **Assembly Points:** In case of emergency during class time, be sure to FAMILIARIZE YOURSELF with the information on [assembly points](#).
- c. **Academic Accommodation Policy:** Students needing an Accommodation because of a Disability or medical condition should contact Student Accessibility Services in accordance with the Procedure for Accommodations for Students with Disabilities available at [procedure-for-accomodations-for-students-with-disabilities_0.pdf](#).

Students needing an Accommodation in relation to their coursework or to fulfil requirements for a graduate degree, based on a Protected Ground other than Disability, should communicate this need, preferably in writing, to the Associate Head of Undergraduate Affairs of the Department of Computer Science, Nathaly Verwaal by email nmverwaa@ucalgary.ca or phone 403-220-8485.

- d. **Safewalk:** Campus Security will escort individuals day or night (www.ucalgary.ca/security/safewalk/). Call [403-220-5333](tel:403-220-5333) for assistance. Use any campus phone, emergency phone or the yellow phones located at most parking lot pay booths.
- e. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIPPA). As one consequence, students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see also www.ucalgary.ca/legalservices/foip.
- f. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvcaca@ucalgary.ca. SU Faculty Rep. Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca; Student Ombudsman, Email: suvcaca@ucalgary.ca
- g. **Internet and Electronic Device Information:** You can assume that in all classes that you attend, your cell phone should be turned off unless instructed otherwise. Also, communication with other individuals, via laptop computers, Blackberries or other devices connectable to the Internet is not allowed in class time unless specifically permitted by the instructor. If you violate this policy, you may be asked to leave the classroom. Repeated abuse may result in a charge of misconduct.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these Surveys.
- i. **SU Wellness Center:** The Students Union Wellness Centre provides health and wellness support for students including information and counselling on physical health, mental health and nutrition. For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).

Department Approval:

Electronically Approved

Date: 2017-09-07 12:17

**Associate Dean's Approval for out
of regular class-time activity:**

Electronically Approved

Date: 2017-09-07 15:13

Course Outcomes

1. By the end of the course, students will be able to define several algebraic structures - including rings and fields - and relationships between examples of these - including homomorphisms and isomorphisms - and provide concrete examples of these used for the design and analysis of algorithms.
2. By the end of the course, students will be able to Recognize and describe both the advantages and disadvantages of the use of algorithms for exact (as opposed to approximate) computation, concerning both the reliability of computed information and the cost to provide this.
3. By the end of the course, students will be able to describe efficient algorithms for integer and polynomial arithmetic - along with algorithms for several other algebraic computations - either in simple English or by providing pseudocode for these. A student can also accurately describe bounds for the time used by each. A student can also demonstrate an understanding of these algorithms by tracing their execution on simple and small inputs.
4. By the end of the course, students will be able to apply techniques for the design and analysis of algorithms, introduced in prerequisite courses, to solve problems that are more complex than those posed the prerequisites - as needed in careers involving algorithm design and analysis and to undertake research in algorithm development.