

## COURSE OUTLINE

### WINTER 2013

#### 1. Pure Mathematics/Statistics 419 – Information Theory and Coding Theory

<u>Lec</u>	<u>Day</u>	<u>Time</u>	<u>Instructor</u>	<u>Office</u>	<u>Phone</u>	<u>Email</u>	<u>Office Hours</u>
L01	MWF	11:00	M. Fenyvesi	MS468	220-3965	<a href="mailto:fenyvesi@ucalgary.ca">fenyvesi@ucalgary.ca</a>	WF 16:00-17:00

**Course Website or Blackboard course name: PMAT 419: Informationtheory&codingtheory  
STAT 419: Informationtheory&codingtheory**

**2. Prerequisites:** Mathematics 311, and Mathematics 321 or any other Statistics course, or consent of Division (see Section 3.5C of Faculty of Science [www.ucalgary.ca/pubs/calendar/current/sc-3-5.html](http://www.ucalgary.ca/pubs/calendar/current/sc-3-5.html) and Course Descriptions: [www.ucalgary.ca/pubs/calendar/current/course-desc-main.html](http://www.ucalgary.ca/pubs/calendar/current/course-desc-main.html))

**3. Grading:** The University policy on grading and related matters is described in sections F.1 and F.2 of the online University Calendar. In determining the overall grade in the course, the following weights will be used:

<i>Assignments</i>	[3 or 4]	25%
<i>Midterm Test</i>	[1]	25% (TBA)
<i>Final Exam</i>		50 % (To be scheduled by the Registrar)

The various components above will be assigned a percentage score and will be combined with the indicated weights to produce an overall percentage in the course. The conversion table between course percentage and letter grade will be provided at least one week before the withdrawal deadline.

**A passing grade in the Final Examination is essential for an overall grade of C- or better.**

**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: [www.ucalgary.ca/pubs/calendar/current/sc-3-6.html](http://www.ucalgary.ca/pubs/calendar/current/sc-3-6.html). It is the student's responsibility to be familiar with these regulations. See also [www.ucalgary.ca/pubs/calendar/current/e-3.html](http://www.ucalgary.ca/pubs/calendar/current/e-3.html).

**5. There are no out-of-class scheduled activities.**

**REGULARLY SCHEDULED CLASSES HAVE PRECEDENCE OVER ANY OUT-OF-CLASS-TIME ACTIVITY.** If you have a conflict with any out of class time activity, please inform your instructor at least one week in advance of the activity so that other arrangements may be made for you.

**6. Textbook:** Information Theory and Coding by N. Abramson (McGraw-Hill) and Coding Theory Notes by M. Fenyvesi

**7. Examination Policy:** Examinations are closed book – no notes or calculators allowed. Students should also read the Calendar, Section G, on Examinations: [www.ucalgary.ca/pubs/calendar/current/g.html](http://www.ucalgary.ca/pubs/calendar/current/g.html)

#### 8. OTHER IMPORTANT INFORMATION FOR STUDENTS:

- (a) 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 K. Student Misconduct (<http://www.ucalgary.ca/pubs/calendar/current/k.html>) 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 at <http://www.ucalgary.ca/emergencyplan/assemblypoints>.
- (c) ACADEMIC ACCOMMODATION POLICY.** Students with documentable disabilities are referred to the following links: Calendar entry on students with disabilities: <http://www.ucalgary.ca/pubs/calendar/current/b-1.html>  
Disability Resource Centre: <http://www.ucalgary.ca/drc/>

- (d) **SAFEWALK:** Campus Security will escort individuals day or night (<http://www.ucalgary.ca/security/safewalk/>). Call **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 (FOIPP). 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 <http://www.ucalgary.ca/secretariat/privacy>.
- (f) **STUDENT UNION INFORMATION:** VP Academic **Phone:** 220-3911 **Email:** [suvpaca@ucalgary.ca](mailto:suvpaca@ucalgary.ca).  
SU Faculty Rep. **Phone:** 220-3913 **Email:** [sciencerep@su.ucalgary.ca](mailto:sciencerep@su.ucalgary.ca) **Website** <http://www.su.ucalgary.ca/>  
Student Ombudsman: <http://www.ucalgary.ca/provost/students/ombuds>
- (g) **INTERNET and ELECTRONIC COMMUNICATION DEVICE Information.** You can assume that in all classes that you attend, **your cell phone should be turned off.** 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.

### 9. Academic Schedule

January 8	Tuesday	Lectures begin
January 18	Friday	Last day to drop courses, no refunds after this date
January 21	Monday	Last day to add/swap courses
January 25	Friday	Fee payment deadline
Feb 17-24	Sun-Sun	Reading Week – no lectures
March 29	Friday	Good Friday – University closed
April 16	Tuesday	Last day of lectures
Apr 19–30	Fri-Tue	Final Examination Period

### 10. Course Content

Information sources, entropy, channel capacity, development of Shannon's theorems, development of coding theory, error detecting codes and a variety of error correcting codes.

### 11. Worksheets and Assignments

Worksheets will contain exercises which will be discussed in class. Students are free to discuss these with other students in the class. Assignments will contain exercises which are to be completed by the individual student. Students will be given at least a week to complete each assignment.

### 12. Texts

The textbook will be used for the first part of the course and will be available from the Bookstore. The notes will be used for the second part of the course and will be available through Bound and Copied in the MacEwan Student Centre.

### 13. Office Hours

I will be available during office hours (Wednesday and Friday 16:00 – 17:00) or you may make an appointment (see me after class or send an email) if you prefer.

## COURSE OUTLINE ADDENDUM -- GRADING WINTER 2013

### 1. Pure Mathematics/Statistics 419 – Information Theory and Coding Theory

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Each piece of work submitted by the student will be assigned a percentage score. The average percentage score for each item of a term component will be combined with its course component weighting listed above to form a weighted average which is to be the final score in the course. This final score, a percentage out of 100, will then be converted to a letter grade using the following conversion table:

≥ 90%	A ±
≥ 75%	B ±
≥ 60%	C ±
≥ 50%	D ±
< 50%	F

As noted in the Calendar, this conversion table could be adjusted, but only if the grades of the students will not be lowered.

**A passing grade in the Final Examination is essential for an overall grade of C- or better.**