Syllabus  
Discrete Methods (MATH A306)  
Fall 2016

Class Times  Monday and Wednesday 2:30-3:45 p.m.
Classroom  SSB 250
Instructor  Dr. Mark Fitch
Office  SSB 154D
Office Hours  Monday, Wednesday, Friday 10:00-11:15 a.m.  See http://www.math.uaa.alaska.edu/~afmaf/classes for all available times.
Office Phone  786-1656
Email  mafitch@uaa.alaska.edu
Web  Blackboard: https://blackboard.uaa.alaska.edu/  
Instructor: http://www.math.uaa.alaska.edu/~afmaf/classes

Textbook  There is no textbook. You will receive problem sets from the instructor which contain all necessary background. This course will be based on you discovering mathematics rather than reproducing a textbook’s description.

Resources  Materials: Problem sets are found on the class websites (see above). Classmates: You are encouraged to work together on problem sets. Instructor: You may ask the instructor questions outside of class. Come by at your convenience or send email any time

Topics  The course covers graph theory and enumeration techniques.

Goals  By the end of the appropriate section you should be able to analyze graphs, be able to create graph theoretic representations for applied problems, be able to employ advanced enumeration techniques, and be able to solve linear recurrence relations for applications. By the end of the course you should have improved your analytical, logic, and communication skills. You should also be more confident in your work.

Instruction  This course uses the Inquiry Based Learning model. You will work through problem sets designed to lead you to conjectures and aid you in proving them. This means that you will participate in discovering mathematics in a fashion similar to career mathematicians. You will also present your solutions and proofs to your classmates and answer their questions. This mimics the peer review process. Note that the use of textbooks and other reference materials is not allowed. Reading someone else’s solution is not discovery. Also you may not ask questions of students or instructors not in this section.

Assignments  Problems sets: Over the semester you will be provided with problem sets. These will contain problems and theorems (called theorems, lemmas, and corollaries) which you will solve and prove. Work must be ready to present for each class. We will cover as much material as we
can present per class. The final due date for each problem set will be announced in class, and generally will match the last day for presenting the material.

Presentations: You must be ready to present your solutions and proofs each class period. A document camera will be used for presentations. This means your written work must be readable by all students. Due to the number of students, presentations may occur less frequently. During presentations you will answer questions posed by other students. When you are not presenting you will ask questions of the student presenting.

Exams: Three times during the semester there will be a section exam. These will assess your ability to solve problems of the types covered. They will not contain proofs.

**Evaluation**

<table>
<thead>
<tr>
<th>Presentations, Proofs, Problems</th>
<th>40%</th>
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<tbody>
<tr>
<td>Exams</td>
<td>56%</td>
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<tr>
<td>Final</td>
<td>14%</td>
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There will be three exams and a final exam. The final exam will be on December 14\(^{th}\) from 1:00 - 3:45 p.m.

Each problem correctly solved is worth two (3) points. Each theorem correctly proven is worth five (5) points. Exam questions will be variably valued. Examples are provided.

Through the problem sets and exams you will demonstrate your ability to work problems. The ability to work problems is, minimally, a C level.

By proving theorems and clearly presenting your discoveries you will demonstrate an understanding of the concepts and an ability to apply and explain them. The ability to understand and apply understanding raises a grade to the B or A levels depending on the quantity and quality of proofs.

If you have a certified learning disability, please inform the instructor so that the university sanctioned assistance can be provided.

**Scale**

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<thead>
<tr>
<th>Grade</th>
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<th>Comment</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100</td>
<td>Grades of C or higher indicate preparedness to progress to additional mathematics courses.</td>
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<tr>
<td>B</td>
<td>80-89</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
<td>Grades of B or A indicate an above average grasp of the material.</td>
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<tr>
<td>D</td>
<td>60-69</td>
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<tr>
<td>F</td>
<td>0-59</td>
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Guidelines

- **Instructions:** If you do not understand any instruction or a question, please ask before the work is due. An assignment may be submitted only once.

- **Feedback:** Explanations of errors on assignments may be provided by posted answer keys instead of on the returned papers.

- **Corrections:** If you discover a mistake in any graded work, please bring it to the attention of the instructor as soon as possible.

- **Incomplete assignments:** Homework and quizzes not turned in receive no credit.

- **Late Work:** Late homework and quizzes need not be submitted. Please arrange excused absences for exams before the exam if at all possible. If you cannot make arrangements before the exam, then the final exam grade will replace that exam score. If the university is closed for an emergency on an exam day, the exam will occur on the next class session.

Attendance

Daily attendance is vital to success in this course. Some material is not covered in the textbook nor online materials.

If you will be required to miss class for university business, including but not limited to athletics and forensics, please inform the instructor at the beginning of the semester or session.

Failure to attend for more than 4 class periods may be regarded as withdrawal and a faculty initiated drop may be processed. Attendance is recorded by submission of the daily quiz or homework. Should the last date of your class attendance be required, it will be determined by the last date of any material submitted by you for recording in the class grade record. If you have evidence that your date of last attendance is otherwise, you must inform your instructor of such prior to the assignment of your final grade. The date of last attendance may impact financial aid.

Most graded assignments are returned at the beginning of class. If you miss this, you will need to come to the instructor’s office to obtain the assignment. All assignments not collected by the final exam will be destroyed as required by FERPA.

Academic Honesty

Use of any communication device during an assessment is prohibited. The instructor will note when accessing the internet is needed for class. Audio devices may not be worn during any assessment.

Non-Academic Assistance

The mission of the UAA CARE Team is to promote a safe and productive learning, living and working environment by addressing the needs of students. If you, or someone you know, needs support, is distressed, or exhibits concerning behavior help by making a referral to the CARE Team. Contact the CARE Team by: filling out a referral on http://www.uaa.alaska.edu/CareTeam; E-mail your concern to Care@uaa.alaska.edu; or call the Care Team phone number: 786-6065; if an emergency—call UPD or 911.
Courtesy in the classroom is important for learning. Remember students and instructors come from varied cultures and backgrounds: be mindful of others as you interact.