Discrete Models for Middle Level Teachers (MATH 232)

Fall 2009

General Information

Instructor(s):Mark Oursland

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Meeting Time: M, W, F 2:00-2:50pm

Location: Hertz 120

Office Hours:
Dr. Oursland: 10:00 to 11:00 AM M - F

Course Description

Prospective teachers will learn and use the concepts of discrete mathematics in a discovery and inquiry approach. This is an on-line course so instructor will initiate new topics through Blackboard that connection to the middle level curriculum. Through classroom discourse, practice problems, quizzes, project papers, and exams students will show their ability to apply discrete mathematic concepts in multiple context and formats.

Prerequisites

The prerequisites are MATH 153 and MATH 154 or instructor permission.

Course Rationale

Curriculum and Evaluation Standards for School Mathematics (NCTM, 2000) and *National Middle School Association* (NMSA) outline specific changes needed in pre-service mathematics. To meet the expectations of national stakeholders, pre-service candidates must develop knowledge, skills, and dispositions that enable the best 4-9 teaching and learning possible. This will be influenced by the best practices in math education. Since many teachers will teach as they were taught, it is crucial that pre-service training include both elements. In particular, effective learning will take place when student(s) (a) preconceptions are engaged, (b) they do activities consistent with professionals in the field, and (c) they are aware of how (and what) they learn. Research indicates the best learning is based on discovery via inquiry and collaborative problem solving in balance with direct instruction. Therefore, your training as future professional educators will emphasize these elements.

Required Course Materials

- Textbook: Navigating through Discrete Mathematics in Grade 6-12, NCTM
- Blackboard account with enrollment in MATH 232
- All materials and lessons are on Blackboard
- Washington State Academic Learning Requirements for Math http://www.k12.wa.us/CurriculumInstruct/default.aspx
- Graphing Calculator (TI-83+ is best)

Learner Outcomes and Assessment

By the end of the course, students will be able to:

Outcomes	Assessment	Standards
Create and solving problems using the conceptual and procedural elements of combinatorics.	Written projects connected to teaching middle level students, quizzes, projects, and exams.	WA-MLM 12 WA-MLS 13 -20
Create and solving problems using the conceptual and procedural elements of Graph theory.	Written projects connected to teaching middle level students, quizzes, projects, and exams.	WA-MLM 12 WA-MLS 13 -20
Create and solving problems using the conceptual and procedural elements of iteration and recursion (including Mathematical induction).	Written projects connected to teaching middle level students, quizzes, projects, and exams.	WA-MLM 12 WA-MLS 13 -20
Use technology tools to explore and represent fundamental concepts of Discrete mathematics.	Written projects connected to teaching middle level students, quizzes, projects, and exams.	WA-MLM 12 WA-MLS 13 -20
Create and solving problems with historic	Written projects connected to teaching	WA-MLM 12

and cultural relevance.	middle level students.	WA-MLS 13 -20

Assessment and Evaluation Guidelines

The instructional and assessment strategies for this course are designed to inform you of your progress in achieving the performance outcomes. The instructors will give you feedback on your progress in meeting performance outcomes.

Assignment	Points
Journal about teacher issues of teaching discrete mathematics to middle level students (6 reflections at 20 points each)	120
Unit Exams: You schedule these exam with the instructor (6 exams at 50 points each)	300
Quizzes and surveys (15 at 10 points each)	150
Comprehensive final multiple choice final exam (100 points)	100
Total Points	670

Grading Scale

93-100% = A, 90-93% = A-, 87-90% = B+, 83-87% = B, 80-83% = B- , 77-80% = C+, 73-77% = C, 70-73% = C-, 67-70% = D+, 63-67% = D, 60-63%, 0-60% = F Please see the CWU Catalog for the eligibility requirements for an incomplete (I).

Performance Expectations

Schedule

The class calendar is tentative due to subject to change, but will be our tentative guideline for the course. If you miss a class, it is your responsibility to find out what was covered, announced, or assigned. In case of emergencies, it is your responsibility to contact the instructors as soon as possible. If a course deadline was missed, assessment alternatives are left up to the discretion of the instructors.

Suggestions for Success

Take the responsibility for your own achievement of these performance objectives. Use the activities, assignments, assessments and people such as the instructor to insure that you understand the mathematical teaching concepts and can demonstrated this understanding in the form of the performance objectives.

ADA Statement

Students with special needs or disabilities who desire academic accommodation are encouraged to submit a copy of the 'Confirmation of Eligibility for Academic Adjustments' from the Disability Support Services office as soon as possible so a plan can be developed that best serves the learning needs of the student. Students without this form should contact the Disability Support Services office in Bouillon 205 at 963-2171 or dssrecept@cwu.edu as soon as possible.