Ed 4161: The Teaching of Mathematics in the Intermediate and Secondary School – Fall 2009

Classrooms: ED 4009
Time: MW 12:30 - 13:45
Instructor: Dr. Margo Kondratieva
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Required Text:

M. Goos, G. Stillman, C. Vale, *Teaching secondary school mathematics*, Allen&Unwin, 2007.

Suggested Texts:

D.J.Brahier, *Teaching Secondary and Middle School Mathematics*, 2nd or 3rd edition, 2005/2009. Pearson Education Inc.

Course Description and Purpose:

This course applies the principles of effective teaching to the teaching and learning of mathematics. Topics include the purpose of mathematics, theories of learning mathematics, and lesson planning and evaluation. (MUN calendar)

The main purpose of this course is to provide intermediate and secondary mathematics pre-service teachers with informative, practical and valuable experiences in the teaching and learning of mathematics. Throughout the course, pre-service teachers will study theory and practical methodology which will enable them to prepare for future experiences in the mathematics classroom, as well as being able to assess mathematical understanding. The student will become familiar with main NCTM documents and the NL mathematics curriculum and program of studies.

Assignments and Evaluation:

Group Presentations on Teaching Mathematics 20%. Time: Sept 28 - Oct 28
Done in groups of four. Each group prepares a short handout and a 50-minutes presentation on one of the chapters 3-6, 13-16 from the required text. (See presentations schedule, units 1 and 2).
Midterm Test 20% Nov 2nd
Done individually. Based on the text, classroom discussions, and solving mathematical problems.
Group Curriculum Project 40%. Time: November 9th -December 2nd
Done in groups of four. Each group prepares a handout, a unit plan and a lesson plan on an assigned math topic. There will be a 50-minutes class presentation (see presentations schedule, units 3) and a short reflection paper due after your presentation.
Mathematics Teaching Portfolio 20%. Due Dec 2nd
Done in groups of four. Each group prepares an organized file of materials/activities and individual teaching philosophies, goals or position statement.
For full credit assignments must be submitted or presented on time. All papers must be submitted as a hard copy and electronically in doc or pdf format.

Expectations:

It is the student's responsibility to attend every class, come prepared and actively participate. Any material covered in class, including handouts, becomes the responsibility of the student. There will not be any alternate assignments given for work missed due to absence. (Refer to the MUN calendar: regulation 14.4.1)

The text will be used throughout the course with readings assigned from it to encourage familiarity with the material before each class. Students will participate in investigations and a variety of activities, so that there is a sense of what it means to 'do' and experience mathematics with the teacher as a 'guide on the side'.

Student participation will take many forms - small group and class discussions, written assignments, projects, presentations, problem-solving activities, investigations, and lesson planning. Learning is fostered when the activity in the classroom includes many occasions for perception, action, reflection and expression. This course will provide a range of possibilities for learning about students, about mathematics, and about teaching.

Resorses:

Many of the resources and reference materials will be available in the CMC (Curriculum Materials Centre) on the 2nd floor of the Education Building. Some useful Internet sites are posted on the course web page. More references can be found in the text at the end of each chapter and in the end of the book.

Group presentations. Tentative schedule.

Unit 1	**Math pedagogy, curriculum, assessment**	class	book
1.2	Developing mathematical connections	Sept 28	chap 3
1.3	Effective use of technology in a math class	Sept 30	chap 4
1.4	Mathematics Curriculum models	Oct 5	chap 5
1.5	Assessing mathematics learning	Oct 7	chap 6
Unit 2	**Equity and diversity in math education**	class	
2.1	Gender issues in mathematics learning	Oct 14	chap 13
2.2	Social and cultural issues in math learning	Oct 21	chap 14
2.3	Teaching students with different learning needs	Oct 26	chap 15
2.4	Working with parents and communities	Oct 28	chap 16
Unit 3	**Math Lesson Presentations**	class	
3.1	Number sense, counting techniques (combinatorics)	Nov 9	chap 7
3.2	Measurement	Nov 13	chap 8
3.3	2D geometry	Nov 16	chap 9
3.4	3D geometry	Nov 18	chap 9
3.5	Algebra	Nov 23	chap 10
3.6	Trigonometry	Nov 25	
3.8	Data Analysis and Probability	Nov 30	chap 11
3.9	(Pre)calculus	Dec 2	chap 12