UNIVERSITY COLLEGE of the FRASER VALLEY

PAC FORM #2 (Page 1)

COURSE IMPLEMENTATION DATE: Sept, 2004
COURSE REVISED IMPLEMENTATION DATE:
COURSE TO BE REVIEWED: Sept, 2008
(Four years after implementation date) (MONTH YEAR format)

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

FACULTY/DEPARTMENT: **Science, Health & Human Services / Mathematics & Statistics**

MATH 410		**3**
COURSE NAME/NUMBER	FORMER COURSE NUMBER	UCFV CREDITS

History of Mathematics
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:

This course surveys the development of mathematical thought from antiquity to the present day. Emphasis is placed on topics likely to be familiar to undergraduates, which include numeration, arithmetic, geometry, number theory, calculus, probability, statistics, set theory, abstract algebra and analysis. While most of the course is concerned with so-called "Western" mathematics, consideration is paid to the development of mathematical concepts in other societies, such as the Chinese and the Mayan. The cultural and historical context in which mathematicians worked will be examined, along with the ways in which ideas about the nature and role of mathematics have changed over the centuries. *Recommended for students considering a career in teaching as well as those wishing to know how their math courses fit into general and intellectual history.*

PREREQUISITES: **21 Math credits above Math 110**
COREQUISITES:

SYNONYMOUS COURSE(S)
(a) Replaces: _____ *(Course #)*
(b) Cannot take: _____ *(Course #)* for further credit.

SERVICE COURSE TO:
_____ *(Department/Program)*
_____ *(Department/Program)*

TOTAL HOURS PER TERM: **60**
STRUCTURE OF HOURS:

Lectures:	**60**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field Experience:		Hrs
Student Directed Learning:		Hrs
Other (Specify):		Hrs

TRAINING DAY-BASED INSTRUCTION
LENGTH OF COURSE: _____
HOURS PER DAY: _____

MAXIMUM ENROLLMENT: **36**
EXPECTED FREQUENCY OF COURSE OFFERINGS: **Every second year**

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☒ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☒ No

AUTHORIZATION SIGNATURES:

Course Designer(s): Susan Milner
Chairperson: Peter Mulhern *(Curriculum Committee)*
Department Head: Gillian Mimmack
Dean: Jackie Snodgrass
PAC Approval in Principle Date:
PAC Final Approval Date: January 28, 2004

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

Successful students will be able to:

- discuss verbally and in writing significant milestones in the development of mathematics
- state the major contributions of prominent mathematicians (or groups of mathematicians) and situate them in time and place
- describe how the personalities and environments of individual mathematicians affected the development of mathematical ideas
- explain how major developments in mathematics arose out of, and in turn affected, contemporary issues
- demonstrate the solutions of some historically important mathematical problems, using techniques available at the time
- discuss the relationship throughout history between so-called "pure" and "applied" mathematics

Students will also learn to find information in the subject area and to compare the reliability of various sources.

METHODS:

This course will be primarily lecture-based, although students may be asked to make short presentations and will be expected to contribute significantly to class discussions. Students will be expected to do extensive reading. Guest speakers and films will be incorporated where appropriate. Evaluation will include quizzes, assignments (mathematical and non-mathematical), at least one essay, and a final exam.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check :) ☒ Yes ☐ No

METHODS OF OBTAINING PLAR:

Course challenge

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

The text is chosen by a departmental curriculum committee.

Burton, David M. 1996. *The History of Mathematics: An Introduction.* 4th edition. McGraw-Hill.
Calinger, Ronald. 1999. *A Contextual History of Mathematics.* Prentice Hall.
Eves, Howard. 1990. *An Introduction to the History of Mathematics.* 6th edition. Saunders.
Fauvel, John and Gray, Jeremy. 1987. *The History of Mathematics – A Reader.* The Open University.
Katz, Victor J. 1998. *A History of Mathematics: An Introduction.* 2nd edition. Addison Wesley.
Suzuki, Jeff. 2002. *A History of Mathematics.* Prentice Hall.

Students will be expected to make use of internet resources and UCFV library resources, including inter-library loans.

SUPPLIES / MATERIALS:

Students will require access to the internet and to a word processor (or typewriter).

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

The weighting of the various components may vary from instructor to instructor and from year to year, although there must be a comprehensive final exam worth from 30% to 50% of the final grade. Students must obtain at least 40% on the final exam in order to pass the course.

Quizzes	15%
Assignments	35%
(possibly including short papers and brief class presentations)	
Essay	20%
Final Exam	30%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

1. Counting, calculation, astronomy, geometry, and problem solving in ancient civilizations: Mesopotamian, Chinese, Egyptian, Indian, and Mayan.
2. Greek mathematics: abstraction, geometry, number theory, conics, and algebra.
3. Medieval mathematics in China, India, the Islamic world, and Europe.
4. The Renaissance in Europe: trigonometry, more algebra, logarithms; relationships between mathematics and the art, navigation, and astronomy of the era.
5. The development of calculus from analytic geometry to complex analysis.
6. Origins and development of probability and statistics.
7. The rise of abstract algebra.
8. Number theory from the Greeks to today.
9. Topics in twentieth century mathematics (ie. set theory, topology, influence of computers, game theory).