

Department of Philosophy
Undergraduate Course Outline
Philosophy/Mathematics 225 & Conceptual Development of Mathematics

Instructor: Professor John L. Bell
StH 4130

Course Information

This course is a survey, at an elementary level, of some of the most important concepts of mathematics. Particular attention will be paid to their historical development and broader philosophical significance. Each of the various branches of mathematics will receive a separate discussion, but their interdependence will be emphasized throughout. Topics may include Greek mathematics, algebra, geometry, the calculus, the theory of numbers, set theory and the philosophy of mathematics.

Course objectives

The goal of this course is to provide students with an overview of the development of mathematical concepts.

Course Materials

Conceptual Development of Mathematics Course notes available from bookstore

Methods of Evaluation

The grade will be evaluated on the basis of two essays and a final exam. The first essay will be due half

Here are some possible essay topics:

1. The number π .
2. Euler.
3. Negative numbers and zero.
4. Gauss is sometimes described as the last mathematician to know everything in his subject. Is this possible today?
5. Complex and imaginary numbers.
6. Squaring the circle.
7. To what extent can the Greeks be said to have anticipated the calculus?
8. From the time of Newton, what has he done that you would agree?
9. From the time of Newton, what has he done that you would disagree?
10. Non-Euclidean geometry.
11. Cantor and the actual infinite in mathematics.
12. Is mathematics a science or an art, or both?
13. In all the records of ancient civilizations there is evidence of some preoccupation with arithmetic over and above the needs of everyday life. Discuss.
14. Mathematics in China and India.
15. The mathematics of the Islamic period.
16. Is mathematics discovered or invented?
17. Mathematics and the Divine.
18. What is the value of nonapplicable mathematics?
19. Mathematics and logic.
20. The mathematics of chance.
21. Fractals in art.
22. The mathematics of chaos.

course grade. Medical documentation will be required; such documentation must be submitted by the student directly to the Office of Disability Services and not to the Registrar's Office. The Registrar's Office will determine if accommodation is warranted.

Statement on Use of Electronic Devices

No electronic devices will be allowed in the Final Exam

Policy on Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

Support Services

Students who are in emotional/mental distress should refer to Mental Health@Western <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

Statement on Use of Plagiarism Software

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com <http://www.turnitin.com>

Additional Links

Registrarial Services <http://www.registrar.uwo.ca>

Student Support Services <http://westernusc.ca/services/>