

**MATH 602**  
**CULTURAL AND PHILOSOPHICAL BACKGROUND OF MATHEMATICS (3 units)**

**Course Outline**

course webpage: <http://pages.towson.edu/shirley/math602.html>

TOPIC OUTLINE (note: math culture topics may change in content or sequence—to be announced)

class	<u>general topic</u>	reading: RH=Hersh MA=Ascher P&F=Powell-Frankenstein NCTM= <i>Principles&amp;Standards</i>	<u>math culture topic</u>
1	course organization, pre-test	RH: Preface	history of mathematics review
2	early ideas of philosophy of mathematics	RH 6,7	favorite numbers
3	crises in philosophy of mathematics	RH 8,9	numerology, gematria, nominals
4	developing a philosophy of mathematics	RH 2-5	mathematical objects
5	humanist/socio-cultural philosophy of mathematics	RH 1, 10-13	folding paper
6	ethnomathematics: ethnic mathematics	MA Intro, 1,3,4; P&F 11,15	games I
7	ethnomathematics: other cultures	MA 2,5,6,7; P&F (9?),10	networks
8	ethnomathematics: political issues	P&F 7,13,14,18	games II
9,10	<u>individual presentations:</u> "Math in MY OWN Culture"	P&F 1,12,16,17	
11	philosophy of math education	NCTM: Chap 2; RH 2,13	magic squares
12	applying philosophy in mathematics education issues	NCTM: Chap 2 "Math Wars" handout	calendars
13	review [take-home final distributed]		jokes
14	final exam due		

**LEARNING OBJECTIVES:** Students in this course should:

1. gain greater insight into the philosophical and logical foundations underlying the fields of mathematics and mathematics education.
2. recognize sources of mathematics from cultures and human activity
3. become familiar with aspects of the culture of mathematics
4. fit current issues of mathematics and mathematics education into the structures of logical foundations, philosophies, and cultures.
5. gain competence to discuss and deal with issues of mathematics and mathematics education.
6. recognize the important role of mathematics teachers in discussions of curriculum, instruction, and assessment issues of mathematics education.

**REQUIRED TEXTS**

---Ascher, Marcia (1991) *Ethnomathematics: a multicultural view of mathematical ideas*, Wadsworth.  
 ISBN 0-412-98941-7

---Hersh, Reuben (1997) *What is Mathematics, Really?* Houghton Mifflin. ISBN 0-19-511368-3

---Powell, Arthur and Frankenstein, Marilyn (editors) (1997) *Ethnomathematics: Challenging Eurocentrism in Mathematics Education*, State University of New York Press ISBN 0-7914-3352-8