

WEBSTER UNIVERSITY

COURSE SYLLABUS

MTHC 5320.01

Craig Hannick

COURSE NUMBER AND SECTION

INSTRUCTOR

TOPICS IN MATHEMATICS: ADVANCED
TRIGONOMETRY

TERM: F I YEAR: 2004

COURSE TITLE

F II _____

SP I X _____

50

SP II X _____

SITE

SU _____

1. Course Description: (Student focus, rationale, scope, prerequisites)

This course covers a review of trigonometric functions, their basic properties and graphs, identities, inverse trigonometric functions, solving trigonometric equations, and solutions of triangles. The main part of the course will consist of trigonometry and complex numbers, hyperbolic functions, trigonometric series, and spherical trigonometry. Applications of trigonometry will be emphasized throughout the course. Graphing calculators and relevant computer software will be used.

2. Learning Outcomes: (Goals, objectives, course outcomes, etc.)

Students will gain a deeper appreciation for the subject of trigonometry through an emphasis on applications. A knowledge of basic trigonometry is assumed.

3. Schedule of required readings, class preparations and assignments, lectures, discussions, student presentations, and exams:

- WEEK 1: Review of basic Trigonometry; Identities
- WEEK 2: Reduction Formulas, Solutions of Triangles
- WEEK 3: Polar Coordinates
- WEEK 4: Polar Coordinates
- WEEK 5: EXAM I
- WEEK 6: Trigonometric Equations; Complex Numbers
- WEEK 7: Complex Numbers; de Moivre's Theorem

WEEK 8: Trigonometric Series
WEEK 9: Trigonometric Series; Euler Formulas
WEEK 10: EXAM II
WEEK 11: Hyperbolic Functions
WEEK 12: Hyperbolic Functions
WEEK 13: Spherical Trigonometry
WEEK 14: Spherical Trigonometry
WEEK 15: Calculating Planetary Positions
WEEK 16: EXAM III

4. Resources

Text Used: Text will be available from the instructor on the first day of the course.

Supplemental Readings: (List and indicate how these are to be used.)

Audio Visual/Other: Calculator demonstrations in class will utilize Texas Instruments TI-83/TI-83 Plus calculators. Students are strongly encouraged to have access to a TI-83/TI-83 Plus.

5. EVALUATION:

- a) Term Paper(s)
- b) Examinations X
- c) Class participation X
- d) Class presentation
- e) Other

This syllabus is subject to change at the discretion of the instructor. Therefore, regular attendance is required.