

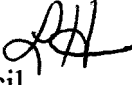


UNIVERSITY OF KENTUCKY

TRANSMITTAL

DATE: March 31, 2003

TO: Angel Clark
Senate Council

FROM: Lissa Holland 
Graduate Council

The Graduate School
351 Patterson Office Tower
Lexington, KY 40506-0027
(859) 257-4613
Fax: (859) 323-1928
www.rgs.uky.edu/rgs/

The Graduate Council met on March 27, 2003, and approved the following:

COLLEGE OF ARTS & SCIENCES

Mathematics

NEW COURSE:

MA 714 – Topics in Discrete Mathematics (3 credits)

Review of recent research in discrete mathematics. *May be repeated to a maximum of nine credits. Prerequisites:* Consent of the instructor.

APR 3 2003

C248

APPLICATION FOR NEW COURSE

Submitted by College of Arts and Sciences

Date 1 Oct 2002

Department/Division offering course Mathematics

2. Proposed designation and Bulletin description of this course

a. Prefix and Number MA 714 b. Title* Topics in Discrete Mathematics

*NOTE: If the title is longer than 24 characters (including spaces), write
A sensible title (not exceeding 24 characters) for use on transcripts Topics Discrete Math

c. Lecture/Discussion hours per week 3 d. Laboratory hours per week

e. Studio hours per week f. Credits

g. Course description

MA 714 Topics in discrete mathematics
Review of recent research in discrete mathematics. May be repeated to a maximum of nine credits. Prerequisite: Consent of instructor.

h. Prerequisites (if any)

Consent of the instructor

May be repeated to a maximum of 3 times (if applicable)

To be cross-listed as

Prefix and Number

Signature, Chairman, cross-listing department

5. Effective Date Spring 2004 (semester and year)

6. Course to be offered Fall Spring Summer

7. Will the course be offered each year? Yes No
(Explain if not annually)

8. Why is this course needed?

The interests of students and faculty in discrete mathematics are no longer exclusively in optimization. Hence the current topics course MA715 does not meet our needs

a. By whom will the course be taught? Faculty in mathematics. Currently Carl Lee, Francois Ma

b. Are facilities for teaching the course now available? Yes No
If not, what plans have been made for providing them?

FEB 28 2003

ORIGINAL

10. What enrollment may be reasonably anticipated? 10 students

Will this course serve students in the Department primarily?

Yes No

Will it be of service to a significant number of students outside the Department?

Yes No

If so, explain.

Some topics may be of interest to students in allied areas such as Computer Science.

Will the course serve as a University Studies Program course?

Yes No

If yes, under what Area? _____

12. Check the category most applicable to this course

traditional; offered in corresponding departments elsewhere;

relatively new, now being widely established

not yet to be found in many (or any) other universities

Is this course part of a proposed new program:

Yes No

If yes, which?

14. Will adding this course change the degree requirements in one or more programs?*

Yes No

If yes, explain the change(s) below

15. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

16. If the course is a 100-200 level course, please submit evidence (e.g., correspondence) that the Community College System has been consulted.

17. Within the Department, who should be contacted for further information about the proposed course?

Name Russell Brown, Director of Graduate Studies Phone Extension 7-3951

*NOTE: Approval of this course will constitute approval of the program change unless other program modifications are proposed.

Signatures of Approval:

Paul A. Perry

Department Chair

David Seep

Dean of the College

10/14/02

Date

FEB 14 2003

Date

JAN 28 2003

Date of Notice to the Faculty

*Undergraduate Council

Date

*University Studies

D. J. Kelly

*Graduate Council

Date

3/29/03

Date

*Academic Council for the Medical Center

Date

*Senate Council (Chair)

Date of Notice to University Senate

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL

Math 714 Topics in discrete math: Hyperplane Arrangements Sample syllabus

References On Reserve

Peter Orlik and Hiroaki Terao, *Arrangements of Hyperplanes*, Springer-Verlag, 1992.

Course Material

For the majority of the course we will follow Orlik and Terao's book on hyperplane arrangements, augmented with more recent results discovered within the past decade.

Course Outline

- Introduction to hyperplane arrangements
- The intersection lattice, the lattice of regions and oriented matroids
- The characteristic polynomial
- Supersolvable and graphic arrangements
- The module of derivations
- Free arrangements
- The topology of the complement of arrangements
- Coxeter groups and reflection arrangements
- Other topics, as time permits

Grading

Your final course grade will be determined using three components: One-third for class participation (includes homework presentations and asking/answering questions in class), one-third for seminar talk and one-third for homework write-up.

Absences from class lectures will have a negative effect on your overall course grade.

Homework

Problems will be posed throughout the course, on the average of one per lecture. Every two weeks we will spend all or part of the Friday lecture time going over homework. Students will volunteer to present all (or part) of a given problem. Students are encouraged to discuss homework problems and

the course material with each other.

Seminar

Each student will also present one seminar-style 50 minute talk about a journal article related to the course material in one of the department's seminars. An annotated list of possible papers will be distributed in class. The topic/paper you decide to speak about must be approved by the instructor.

Final Exam

In lieu of an in-class final exam, you will be asked to turn in the solutions to all of the course homework. Your solutions should be written in full sentences, using correct grammar and spelling, as one would find in a mathematical textbook or journal article. They must be typewritten using a document preparation system such as \LaTeX .

December 19, 2002

Learning outcomes

Students will become familiar with the principal definitions, techniques, theorems and algorithms in the subject.

2. Students will be actively engaged in developing the subject by developing the proofs in exercises, implementing and analyzing algorithms and developing extensions of the principal results of the subject.
3. Students will develop the ability to communicate mathematics orally and/or in writing.

ARTS AND SCIENCES COLLEGE COUNCIL/CURRICULUM COMMITTEE

INVESTIGATOR REPORT

INVESTIGATING BODY Area A, Steven Yates
(Area, Area Chair)

COURSE MAJOR or DEGREE MA 714
(department or college)

DATE FOR COUNCIL REVIEW 2/14/03

CATEGORY: NEW CHANGE, DROP

INSTRUCTIONS: This completed form will accompany the course application to the Graduate/Undergraduate Council(s) in order to avoid needless repetition of investigation. The following questions are included as an outline only. Be as specific and as brief as possible. If the investigation was routine, please indicate this. The term "course" is used to indicate one course, a series of courses or a program, whichever is in order. Return the form to the Associate Dean, 231 Patterson Office Tower for forwarding to the other Council(s). ATTACH SUPPLEMENT IF NEEDED.

List any modifications made in the course proposal as submitted originally and why

NONE

2. If no modifications were made, review considerations that arose during the investigation and the resolutions.

NONE

3. List contacts with program units on the proposal and the considerations discussed therein.

Carl Lee (by Robert Meljon of the Curriculum Committee) was contacted to determine the overlap of this proposed course with MA 715. The two topics do overlap, but can be quite different.

4. Additional information as needed.

NONE

5. A&S Area A, Natural & Mathematical Sciences Curriculum Committee Recommendation:

APPROVE APPROVE WITH RESERVATION, OR DISAPPROVE

6. A&S Council Recommendation:

APPROVE APPROVE WITH RESERVATION, OR DISAPPROVE

7. *Steven Yates*
A&S Council Investigator, Dr. Steven Yates

Date: 2/14/03