UK

UNIVERSITY OF KENTUCKY

TRANSMITTAL

DATE: April 25, 2003

TO: Angel Clark
             Senate Council

FROM: Lissa Holland
             Graduate Council

The Graduate Council met on April 24, 2003, and approved the following:

COLLEGE OF ARTS & SCIENCES

Mathematics

NEW COURSE:

MA 614 – Enumerative Combinatorics (3 credits)

An introduction to the basic notions and techniques in enumerative combinatorics. The material has applications to polytopal theory, hyperplane arrangements, computational commutative algebra, representation theory and symmetric functions. Topics include generating functions, the principle of inclusion and exclusion, bijections, recurrence relations, partially ordered sets, the Mobius function and Mobius algebra, the Lagrange inversion formula, the exponential formula and tree enumeration.

Prerequisites: A graduate course in linear algebra or consent of instructor.

APPLICATION FOR NEW COURSE

Submitted by College of <u>Arts and Sciences</u>   Date <u>August 19, 2002</u>

Department/Division offering course <u>Mathematics</u>

2. Proposed designation and Bulletin description of this course

   a. Prefix and Number <u>MA 614</u>   b. Title* <u>Enumerative Combinatorics</u>
      *NOTE: If the title is longer than 24 characters (including spaces), write
      A sensible title (not exceeding 24 characters) for use on transcripts   <u>Enum Combinatorics</u>

   c. Lecture/Discussion hours per week <u>3</u>   d. Laboratory hours per week <u>0</u>

   e. Studio hours per week <u>0</u>   f. Credits <u>3</u>

   g. Course description

      <u>See attached.</u>

   h. Prerequisites (if any)

      <u>A graduate course in linear algebra or consent of instructor.</u>

      May be repeated to a maximum of _____ (if applicable)

4. To be cross-listed as

Prefix and Number	Signature, Chairman, cross-listing department

5. Effective Date <u>Spring ~~2003~~ 2004</u>   (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?

   <u>A proposed change in emphasis of one of the mathematics doctoral prelim sequences</u>

   <u>from optimization to discrete mathematics.</u>

9. a. By whom will the course be taught? <u>Discrete mathematics group faculty members.</u>

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

Signatures of Approval:

Peter A. Perry	_10/14/62_
Department Chair	Date
David Leep	DEC 13 2002
Dean of the College	Date
	NOV 27 2002
	Date of Notice to the Faculty
*Undergraduate Council	Date
*University Studies	Date
D.M.d. Kali	
*Graduate Council	_4/25/03_
	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

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ACTION OTHER THAN APPROVAL

Rev 11/98

Enumerative Combinatorics
Math 614

References:

1. Richard P. Stanley, Enumerative combinatorics. Vol. 2. Cambridge Studies in Advanced Mathematics, 62. Cambridge University Press, Cambridge, 1999.

2. J. H. van Lint and R. M. Wilson, A course in combinatorics. Second edition. Cambridge University Press, Cambridge, 2001.

3. Herbert S. Wilf, Generatingfunctionology. Second edition. Academic Press, Inc., Boston, MA, 1994.

Course Description:

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ARTS AND SCIENCES COLLEGE COUNCIL/CURRICULUM COMMITTEE

INVESTIGATOR REPORT

INVESTIGATING BODY   Area A, Steven Yates   COURSE, MAJOR or DEGREE _MA 614_
                     (Area, Area Chair)   (department or college)

DATE FOR COUNCIL REVIEW _12/13/02_   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.

None

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.   _____   Date: _12/13/02_
     A&S Council Investigator, Dr. Steven Yates

File: \InvestigatorRpt