## NEW COURSE PROPOSAL FORM

**TO:** JoAnn Lewin

**ACADEMIC AREA:** Mathematics

**PROPOSEd by**: Ron Smith and Joan Van Glabek

**PRESENTER:** ron smith or joan van glabek

**DATE:** 11/2/2010

**COURSE PREFIX, NUMBER AND TITLE:**

### Mas 3105 Linear algebra

### SECTION I

**COURSE INFORMATION: TYPE iN THE APPROPRIATE INFORMATION FOR EACH ITEM:**

**DEPARTMENT: Mathematics**

**COURSE PREREQUISITE(S):** Mac 2313

**MINIMUM GRADE OFprereqUISITE(s):** C

**COURSE COREQUISITE(S):** None

**COURSE CREDITS OR CLOCK HOURS:** 3 credits

**credit type: COLLEGE CREDIT (TRANSFERABLE)**

**CONTACT HOURS:** 3 hours per week

**COURSE DESCRIPTION:**

This course is an introduction to the basic concepts and theorems of linear algebra. It is a core requirement for the Secondary Education in Mathematics Degree. It is intended to provide the future mathematics teacher with in-depth background knowledge.

**GENERAL TOPIC OUTLINE:**

* Structure of matrices and determinants
* Matrix operations
* Canonical factorizations
* Gauss-Jordan elimination
* Vector spaces
* Linear transformations
* Basis, independence, orthogonality
* Eigenvalues and eigenvectors
* Similarity rules
* Diagonalization of matrices
* Introduction to Markov chains

**LEARNING OUTCOMES:**

TYPE IN ALL OF THE LEARNING OUTCOMES, ASSESSMENTS AND GEN ED COMPETENCIES AS THEY SHOULD BE DISPLAYED IN THE SYLLABUS

|  |  |  |
| --- | --- | --- |
| Use the structure of matrices and determinants to set up and solve application problems. | HOMEWORKand/orQUIZZESand/orTESTSand/orGROUP ASSIGNMENTSand/orPROJECTS | **CT** |
| Perform mathematical operations using matrices and determinants with and without calculators. | **TIM** |
| Form canonical factorizations of matrices. |  |
| Complete Gauss-Jordan elimination to produce solutions to systems of equations. |  |
| Assess when a set and two operations define a vector space. |  |
| Complete linear transformations. |  |
| Compare and measure the basis, independence and orthogonality of a matrix. |  |
| Compute and analyze eigenvalues and eigenvectors of matrices. |  |
| Analyze properties for similar matrices. |  |
| Complete diagonalization of matrices. |  |
| Integrate Markov chains into problems involving matrices. | **COM, GSR** |

### SECTION II

**ICS CODE FOR THIS COURSE:** ADVANCED AND PROFESSIONAL - 1.16.17 - MATHEMATICS

**IF YOU INTEND TO RESTRICT STUDENT REGISTRATION BASED ON THE STUDENTS’ MAJOR(S), ENTER ALL APPLICABLE MAJOR RESTRICTION CODE(S):** Click here to enter text.

**GRADE MODE:** STANDARD GRADING

**IS THIS A GENERAL EDUCATION COURSE?** No

**IS THIS A WRITING INTENSIVE COURSE?** No

**iS THIS AN HONORS COURSE?** No

**IS THIS A REPEATABLE COURSE?** No

**IF SO, WHAT IS THE MAXIMUM NUMBER OF CREDITS A STUDENT CAN EARN FOR THIS COURSE?**ENTER NUMBER

**DO YOU EXPECT TO OFFER THIS COURSE THREE TIMES OR LESS?**No

**WILL THIS NEW COURSE HAVE AN IMPACT ON OTHER COURSES, PROGRAMS OR DEPARTMENTS?**No

**eXPLAIN:**

CLICK HERE TO ENTER TEXT.

**IF YES, HAVE YOU DISCUSSED THIS PROPOSAL WITH ANYONE (FROM OTHER DEPARTMENTS AND/OR PROGRAMS) REGARDING THE IMPACT? WERE ANY AGREEMENTS REACHED?**

CLICK HERE TO ENTER TEXT.

**DO YOU ANTICIPATE THAT STUDENTS WILL BE TAKING ANY OF THE PREREQUISITES LISTED FOR THIS COURSE IN DIFFERENT PARTS OF THE SAME TERM?**No

**IS ANY COREQUISITE LISTED ON THIS COURSE ALSO LISTED AS A COREQUISITE ON ITS PAIRED COURSE?**SELECT ANSWER.

eXAMPLE: CHM 2032 IS A COREQUISITE FOR CHM 2032L AND CHM 2032L IS A COREQUISITE FOR CHM 2032.

### SECTION III

**PROVIDE JUSTIFICATION FOR CURRICULUM ACTION (OTHER EXPLANATORY INFORMATION):**

Course is currently offered to our students at FGCU. Edison plans to offer this on our campus.

**NOTE:**

CHANGES FOR THE UPCOMING FALL TERM MUST BE SUBMITTED AND APPROVED NO LATER THAN THE FEBRUARY CURRICULUM COMMITTEE MEETING PRIOR TO THE START OF THE NEXT ACADEMIC YEAR. CHANGES DURING MID-SCHOOL YEAR ARE NOT ALLOWED. EXTREME CIRCUMSTANCES WILL REQUIRE APPROVAL FROM THE VICE PRESIDENT OF ACADEMIC AND STUDENT AFFAIRS TO BEGIN IN THE SPRING TERM. THE PROPOSED CHANGES MUST BE PRESENTED AND APPROVED BY THE SEPTEMBER CURRICULUM COMMITTEE PRIOR TO THE SPRING SEMESTER.

**EXCEPTION:**
COURSES PUBLISHED IN THE 2010-2011 CATALOG THAT ARE PENDING CURRICULUM APPROVAL WILL BE EFFECTIVE SPRING 2011.

**TERM IN WHICH PROPOSED ACTION WILL TAKE PLACE:**FALL 2011TYPE OTHER

 VPASA SIGNATURE (IF NECESSARY) TO APPROVE CURRICULUM ACTION MID-YEAR:

 APPROVED EFFECTIVE TERM

**FACULTY ENDORSEMENTS:**PLEASE SEPARATE FACULTY MEMBERS WITH A COMMA (,)

jo ann lewin, scott berthiaume, laurice garrett

**DEPARTMENT CHAIR / PROGRAM COORDINATOR ENDORSEMENT:**

 PLEASE SELECT TODAY’S DATE.

**ASSOCIATE / ACADEMIC DEAN ENDORSEMENT:**

 PLEASE SELECT TODAY’S DATE.

**STUDENT ASSESSMENT COMMITTEE CHAIR ENDORSMENT:**

 PLEASE SELECT TODAY’S DATE.

**DISTRICT DEAN OF INSTRUCTION ENDORSEMENT:**

bOB BEESON PLEASE SELECT TODAY’S DATE.

AFTER REVIEWING AND SIGNING THIS PROPOSAL, THE DISTRICT DEAN WILL RETURN THE PROPOSAL TO THE DEPARTMENT CHAIR OR PROGRAM COORDINATOR WILL SUBMIT THE PROPOSAL TO THE VPASA OFFICE.

THE DEPARTMENT CHAIR/PROGRAM COORDINATOR WILL SEND THIS PROPOSAL ALONG WITH ANY OTHER PROPOSALS FROM HIS/HER DEPARTMENT BEING SUBMITTED FOR REVIEW BY THE CURRICULUM COMMITTEE TO THE STUDENT ASSESSMENT COMMITTEE FOR REVIEW. ONCE APPROVED BY THE STUDENT ASSESSMENT COMMITTEE, SUBMIT THE PROPOSAL(S) TO THE OFFICE OF THE VICE PRESIDENT OF ACADEMIC AND STUDENT AFFAIRS AT LEAST TWO FRIDAYS PRIOR TO THE NEXT SCHEDULED CURRICULUM COMMITTEE MEETING.

FOR MORE DETAILS, PLEASE REFER TO THE CURRICULUM COMMITTEE GUIDELINES, CURRICULUM PROCESS FLOW CHART AND THECRITICAL DATES TABLE BY CLICKING CURRICULUM COMIITTEE ON THE FACULTY/STAFF LINK FROM THE EDISON HOMEPAGE (CLICK ON THE CURRICULUM PROCESS LINK).

REVISED: 8/25/10