



Section 1. Proposed Course Outline (A general statement of course content that informs class syllabus construction. Once approved, all sections of a given course must include this content, no matter which instructor teaches the course, or the mode of delivery. Divisions must include this new course outline in the Divisional Course Outline binder as required by COPPs.)

Course Number: **MTH 260** Full Course Title for print catalog: **Linear Algebra**

Abbreviated Course Title for Banner: **Linear Algebra** (30 character limit)

Prerequisites: MTH 112

Co-requisites: MTH 231 or MTH 251

Grade Option: ☒ Graded (with P/NP option) ☐ Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
4 Lecture	40 hours (lecture credits x 10)	40 hours (lecture credits x 12)	44 hours (lecture credits x 11)
__ Lec/Lab	__ hours (lec-lab credits x 20)	__ hours (lec-lab credits x 24)	__ hours (lec-lab credits x 22)
__ Lab	__ hours (lab credits x 30)	__ hours (lab credits x 36)	__ hours (lab credits x 33)
4 Total credits (sum)	40 Total hours (sum)	40 Total hours (sum)	44 Total hours (sum)

Course Description (300 character limit):

This course provides a foundation of linear algebra concepts and terminology. It includes linear systems, vector spaces, matrices, determinants, eigenvalues, and eigenvectors.

Course Outcomes and Proficiencies

What will the student *know* or *be able to do* at the end of the course?

What *attitudes* related to the subject will the student hold?

Upon successful completion of this course, the student will:

1. Perform basic operations of matrix algebra and apply them to solve systems of linear equations.
2. Discuss the basic concepts of vector spaces, linear transformations and inner product spaces.
3. Interpret the concepts of vector spaces from a geometric perspective.
4. Apply the techniques of linear algebra to problems in applied mathematics such as the calculation of eigenvalues and eigenvectors;
5. Apply the knowledge of linear algebra to numerical methods such as Gaussian Elimination.

Assessments Planned

What evidence will demonstrate that students have achieved course outcomes? (assessment tools may include departmental tests, written products, portfolios, juried performances, quizzes and exams, or alternative assessments such as qualitative studies, capstone projects, external reviewers, etc.)

How each outcome will be assessed:

Homework

Exams and quizzes.

Cummulative final

Project

Course Content by Major Topics

What topics will be presented? What are the main activities of the course? What are the central themes?
(See sample at <http://www.lanecc.edu/cops/format3.htm>.)

Topics:

Linear Equations
Vectors
Matrices
Linear Transformations
Determinants
Eigenvectors
Vector Spaces
Numerical Methods

Section 2. Proposal Information

Course Developer:

Angela Martinek,
Michel Kovcholovsky

Type of Proposal

☒ New course

Type of Course:

☒ Lower Division Collegiate (transfer)

Date: 2/14/2013

☐ Currently 199 or 299

☐ Professional/Technical (required or elective)

Catalog year to take effect:

☐ Experimental Course

☐ Developmental, numbered below 100

☐ 2012-2013

☐ 199 Special Studies

☒ 2013-2014

☐ 299 Trends

☐ Revised course (If increasing credits, use credit change form)

☐ Reactivated course with no change

☐ Reactivated course with changes

Rationale:

How does this proposal further the goals of the program or department?

This course will prepare students for success in subsequent courses where Linear Algebra topics are required.

What assessment evidence supports this proposal?

Linear Algebra topics have been referenced in CS course work, Mathematics and Engineering without adequate preparation. Experience has shown this slows the progress of meeting course objectives in these courses.

How do you know there is a demand for this course?

CS division requested a course be offered by mathematics to cover the topics required for successful completion of their programs.

Section 3. Curriculum Equity (<http://www.lanecc.edu/cops/curric.htm>)

To promote an environment where all learners are encouraged to develop their full potential, this course will support Lane's Curriculum Equity policy in the following way(s):

College staff will encourage all men, women, minorities, and people with disabilities to consider all kinds of occupations, acknowledge all kinds of lifestyles and make efforts to make special arrangements for people with disabilities by providing access to location, information, and materials, as needed.

Section 4. For revised courses only: PREVIOUS Catalog/Course Information:

Course Number: _____ Course Title in Banner: _____ (30 characters maximum)

Full Course Title in print catalog:

Prerequisites:

Co-requisites:

Grade Option: ☐ Graded (with P/NP option) ☐ Pass/No Pass only

Number/Type Credits	Term Minimum Contact	Term Maximum Contact	11-Week Term Contact
___ Lecture	___ hours (lecture credits x 10)	___ hours (lecture credits x 12)	___ hours (lecture credits x 11)
___ Lec/Lab	___ hours (lec-lab credits x 20)	___ hours (lec-lab credits x 24)	___ hours (lec-lab credits x 22)
___ Lab	___ hours (lab credits x 30)	___ hours (lab credits x 36)	___ hours (lab credits x 33)
___ Total credits (sum)	___ Total hours (sum)	___ Total hours (sum)	___ Total hours (sum)

Course Description:What will change? ☐ Course Number ☐ Title ☐ Course Description ☐ Credit hours ☐ Contact hours

Section 5. Support Courses (New Professional/Technical course proposals must complete.)

Professional/Technical courses are tracked within programs for purposes of Carl Perkins funding and budgetary planning. Indicate all degree or certificate programs for which this course will be required.

Program	Division

Section 6. Overlap Courses (New course proposals must complete.)

While overlap of course materials is not necessarily a flaw, duplication of course materials may lead to inefficient use of college resources. If there is overlap, the faculty of overlapping courses must agree on the extent of overlap and attach a rationale explaining its necessity.

Indicate all departments/courses that this course may overlap. Division Dean of existing course enters one of two options at right. Note: N/A is not an option.

Options:

1. No overlap.
2. Approved: overlap is acceptable. Rationale attached.
3. Disapproved: reasons attached.

Division	Course Number / Title	% Overlap	Option	Division Dean of existing course (Signature required for all options)	Date
Mathematics	MTH 261	50%	2		3/20/13

Section 7. Qualification to fulfill degree requirements (complete all relevant forms, available at <http://www.lanecc.edu/currshed/index.html> and send to Mary Brau for the Degree Requirements Review Committee):

☐ Form(s) applying for the following degree requirement status have been attached. (Only check this box when forms have been completed and attached.)

AAOT, ASOT-Bus, OTM:

- ☐ Arts & Letters
- ☐ Social Sciences
- ☒ Science /Computer Science
- ☐ Mathematics
- ☐ Cultural Literacy Option

All degrees:

- ☐ Health/Wellness/Fitness

AAS, 1-year and 2-year certificates:

- ☐ Human Relations

Optional designation:

- ☐ Sustainability status

Section 8. Library Impact Statement

Under accreditation standards, Library consultation is essential for new programs, new courses and for substantively revised courses when the revisions entail any change in library use.

What assignments will require the use of library and information resources?

none

Each academic area has a Liaison Librarian (<http://www.lanecc.edu/library/services/liaison.htm>). Contact the designated librarian to discuss the library needs of your course. Please allow the librarian at least one week to assess library resources.

To be completed by Liaison Librarian:

- ☒ Library resources are adequate to support this proposal.
☐ Additional resources are needed but can be obtained from current funds.
☐ Significant additional Library funds/resources are required to support this proposal.

Liaison Librarian

Date

Section 9. Divisional Approval (To be completed by Division Chair and Administrative Assistant)

Human, Physical, and Financial Resources:

☐ Additional instructional costs (staff, materials, services or facilities) will be incurred to offer this course. Source of funding:

☒ No additional instructional resources (staff, materials, services or facilities) are needed to offer this course.

Explain: Faculty are already available to teach this course, and it will be staffed based on enrollment.

Required Certifications:

☐ We have developed minimum course certification standards according to the COPPs procedure "Instructor Qualifications: Credit," to be filed with ASA upon course approval.

☒ We have completed faculty certification form(s) for faculty qualified to teach this course, to be filed with ASA and Human Resources upon course approval.

Fees:

- ☐ We have completed fee rationale and fee request forms to be submitted to ASA upon course approval, in compliance with the COPPs procedure, "Fees: Special"
☒ No special fees will be required for this course.

Divisional Recommendation:

☒ The Division Chair and Administrative Assistant have reviewed this course proposal and kept a copy for divisional files.

☒ Faculty review of this course was completed within the division on 2-14(date).

☐ Pass

☐ Do Not Pass

Administrative Assistant/Coordinator

Date

Academic Dean

Date

Section 10. College Approval

Curriculum Committee Chair

Date

Executive Dean for Academic Affairs

Date

Curriculum Approval Committee hearing:

Date

Vice President for Academic &
Student Affairs

Date