# Ma 2071 D term 2016

**last modified 3/9/16**

**Staff**:

instructor: John Goulet, PhD goulet@wpi.edu Stratton 201A

TA & PLAs : see below

**text**: David Lay *Linear Algebra and Its Applications* 5th ed

**Calendar**: see course schedule in Blackboard in the *Course Materials* folder

**Ma 2071 D 2016**

| | Mon | Tues | Weds | Thurs | Friday |
|---|---|---|---|---|---|
| March | 14 | 15 | 16 | 17 | 18 |
| | 21 | 22 | 23 | 24 | Proj Group due 25 |
| | Exam #1 28 | 29 | 30 | 31 | 1 |
| April | 4 | 5 | 6 | Proj Draft due 7 | 8 |
| | 11 | 12 | 13 | Exam #2 14 | 15 |
| | Patriots Day 18 | 19 | 20 | Proj Pres Day* 21 | 22 |
| | 25 | 26 | 27 | Project due 28 | 29 |
| May | Exam #3 2 | 3 | 4 | 5 | 6 |

*** Project Presentation Day - no class**

Also please note the undergrad calendar at

http://www.wpi.edu/Images/CMS/Undergraduate/UG_15-16_with_summer_FINAL.pdf

**Exams**(3):

**#1: Linear systems, matrix algebra** **March 28 (Monday)**
**#2: Vector spaces and linear transformations** **April 14 (Thurs)**
**#3: Eigenvalues and Diagonalization** **May 2 (Monday)**

**Conferences**:

homework reviewed, additional problems available

student based – no lectures

exams returned

| **Course no.** | **Conf/Lab** | **TA/ PLA** |
|---|---|---|
| MA2071-D01 | Weds 3 | TBD |
| MA2071-D02 | Weds 1 | |
| MA2071-D03 | Weds 12 | |
| MA2071-D04 | Weds 11 | |
| MA2071-D05 | Weds 8 | |
| MA2071-D06 | Weds 12 | |

**Course Grade** computed by: **3 Exams: 75%** **Project: 25%**

## Course Philosophy

A productive educational experience in this course is accomplished through a combination of the core materials from class and homework (systems, matrix algebra, vector spaces, diagonalization ) and an application of personal interest (the project). The project allows for two things: some personal decision about what you study, and the opportunity to do project/group focused work outside of class (a part of the WPI approach to education).

## Assumptions

You have been through calculus and perhaps Differential Equations. Gotten credit. Hence it is assumed you bring with you some knowledge from those courses to refer to. Linear algebra is not an isolated subject. It relates well to many branches of mathematics.

For example, if you took ma 2051 then knowing what solutions to $y'' + 25y = 0$ look like is not out of the question.

## Linear Algebra Compared with Calculus

As compared to the calculus you have taken, linear algebra has much more terminology and notation. You need to adjust to that. Also there are a wide variety of concepts that get drawn upon.

Algebraically it appears simple but can be deceptive if you treat it like the Real Numbers.

Solving **ax = b** in Reals is easy. Solve **AX = B** in matrices has a number of issues and outcomes to it. But they look pretty similar!

## Technology

You should be able to do basic computations using technology, as well as by hand. Your choice to pick a tool that will do matrix reduction, matrix arithmetic, and eigenvalues, at the very least. Choices include: **Maple**, **Matlab**. Both are easily available to WPI students via *Remote Desktop*

## Project

groups and choice handed in on time 5% March 25

draft - 5% April 7

final project - 15% April 28

## Exam policy

There are **no makeups** for exams, nor are they given after the fact. It is your responsibility to show up on time for them. The only exceptions are pre-arranged agreements with the instructor or a physical letter from Health Services. People needing special accommodations are encouraged to schedule exams at the EPC. Classic excuses such as "I overslept", "my friend did not wake me up", "I didn't feel good" etc don't cut it. You signed up for an 8:00 class so accept the responsibility that goes with it.

## Academic Dishonesty

We only have two situations:

Exams

no electronics, notes, talking, looking elsewhere.

Project

cite all references and people who contributed. Leave off those who did not.

Please also refer to the college's official policy

http://www.wpi.edu/offices/policies/policy.html