# Information
## Math 233

**Professor**
Marcello Lucia
Office 1S-226, marcello.lucia@csi.cuny.edu
`http://www.math.csi.cuny.edu/~mlucia/`

**Time and Place**
Monday: 6:30–8:10pm, 3S-108
Wednesday: 6:30–8:10pm, 1S-112

Office hours:
Monday: 2:30–3:20 pm and 8:10–9:00pm
Wednesday: 5:30–6:20 pm.

**Textbook**
CALCULUS-EARLY TRASNSCENDENTALS, by *Rogawski*
W.H. Freeman & Co. (2008)
ISBN-13: 978-1-4292-1073-7
ISBN-10: 1 -4292-1073-7

**Course Outline**
This course aims to study functions in two and three variables. The notion of continuity, differentiability, integral of several variable functions will be covered by this class.

**Course Grade**
The final course grade is determined as follows:

| | |
|---|---|
| **Homework & MathLab** | 10% |
| **First Test** | 10% |
| **Midterms** | 20% + 20% |
| **Exams** | Final 40% |

*First test*: February 15th
*Second Test*: March 14th
*Third Test*: April 25th
*Homework*: must be submitted using "Webwork" that can be found on the mathematics Website of CSI. Go to `http://www.math.csi.cuny.edu/` and follow the links.

*Extra Credit*: February 22nd, Building 1P-120 (Recital Hall), 2:30PM-3:25PM, **Soap Bubbles and Mathematics**, Undergraduate Lecture by Prof. Frank Morgan .

**MATLAB**
MatLab Projects can be downloaded from: www.lulu.com/csimath

Deadline:
MATLAB Project 1 and 2: March 14th
MATLAB Project 3 and 4: April 25th

**Integrity policy**
Please refer to
`http://www.cuny.edu/about/info/policies/academic-integrity.pdf`

**Cell phone**
Let us stay focused on the class !
Thus, cell phone should be switched off.

**Lesson Plans**
Below, each lesson corresponds to a 50minutes class

| Lesson | Sections | Topics | Homework |
|---|---|---|---|
| 1, 2 | 12.1 | Review: Vectors | Webwork 12.1 |
| 2 | 12.2 | Review: Vectors | Webwork 12.2 |
| 3 | 12.3, 12.4 | Dot Product, Cross Product | Webwork 12.3 & 12.4 |
| 4 | 12.5 | Planes in three-space | Webwork 12.5 |
| 5 | 12.6 | Quadratic surface | Webwork 12.6 |
| 6 | 13.1 | Vector-valued functions | Webwork 13.1 |
| 7 | 13.2 | Calculus of vector valued functions | Webwork 13.2 |
| 8 | 13.3 | Arc-length and speed | Webwork 13.3 |
| 9, 10 | | **Exam 1** (February 15th) | |
| 11 | 13.5 | Curvature | Webwork 13.4 |
| 12 | 13.6 | Curvature and Motion in three space | Webwork 13.5 |
| | | Soap Bubbles (February 22nd, 2:30PM) | |
| 13 | 14.1 | Functions of several variables | Webwork 14.1 |
| 14 | 14.2 | Limits and continuity | Webwork 14.2 |
| 15 | 14.3 | Partial derivatives | Webwork 14.3 |
| 16 | 14.4 | Tangent planes | Webwork 14.4 |
| 17 | 14.5 | Gradient, Directional derivatives | Webwork 14.5 |
| 18 | 14.6 | Chain rule | Webwork 14.6 |
| 19 | 14.6 | Chain rule | |
| 20 | 14.7 | Optimization | Webwork 14.7 |
| 21, 22 | 14.8 | Lagrange multipliers | Webwork 14.8 |
| 23, 24 | | **Exam 2** (March 14th) | |
| 25, 26 | 15.1 | Integration in several variables | Webwork 15.1 |
| 27, 28 | 15.2 | Double integrals | Webwork 15.2 |
| 29, 30 | 15.3 | Triple integrals | Webwork 15.3 |
| 31, 32 | 15.4 | Integration in other coordinates | Webwork 15.4 |
| 33, 34 | 15.5 | Change of variables | Webwork 15.5 |
| 35, 36 | 16.1 | Vector fields | Webwork 16.1 |
| 37, 38 | 16.2 | Line integrals | Webwork 16.2 |
| 39, 40 | 16.3 | Conservative vector fields | Webwork 16.3 |
| 41, 42 | | Review | |
| 43, 44 | 16.4 | **Exam 3** (April 25th) | |
| 45 | 16.4 | Surface integral | Webwork 16.4 |
| 46 | 16.4 | | |
| 47 | 16.5 | Surface integral of vector fields | Webwork 16.5 |
| 48 | 16.5 | | |
| 49 | 17.1 | Green's Theorem | Webwork 17.1 |
| 50 | 17.1 | Green's Theorem | |
| 51 | 17.2 | Stokes' Theorem | Webwork 17.2 |
| 52 | 17.2 | Stokes' Theorem | |
| 53 | 17.3 | Divergence Theorem | Webwork 17.3 |
| 54 | 17.3 | Divergence Theorem | |
| 55, 56 | | Review | |