FLORIDA POLYTECHNIC UNIVERSITY

Mathematics Courses

Spring 2023 General Education Offerings

Courses in this packet are linked below.

Dept	Course ID	Course Name	Credits
AMH	2020	American History since 1877	3
AMH	2010	American History to 1877	3
CHM	2045	Chemistry 1	3
CHM	2045L	Chemistry 1 Lab	1
ECO	2023	Principles of Microeconomics	3
ECO	2013	Principles of Macroeconomics	3
ENC	1101	English Composition 1: Exp & Arg Writing	3
ENC	2210	Technical Writing	3
EVR	1001	Environmental Science	3
EVR	1001L	Environmental Science Lab	1
IDS	2144	Legal, Ethical, and Management Issues in Technology	3
LIT	2000	Intro to Literature	3
MAC	2311	Analytic Geometry and Calculus 1	3
MUL	2010	Music Appreciation	3
PHY	2048	Physics 1	3
PHY	2048L	Physics 1 Lab	1
STA	2023	Statistics 1	3

Schedule and Faculty Assignments (as of 11/14/2022)

Code	Crs #	Sct #	Course Name	CR	Days	Start Time	End Time	Room	Faculty FN	Faculty LN
AMH	2010	1	American History to 1877	3	MWF	12:00PM	12:50PM	1123	Patrick	Luck
AMH	2020	1	American History Since 1877	3	MWF	2:00PM	2:50PM	1158	Patrick	Luck
CHM	2045	1	Chemistry 1	3	MWF	1:00PM	1:50PM	1044	Tracy	Olin
CHM	2045	2	Chemistry 1	3	MWF	8:00AM	8:50AM	1065	Ajeet	Kaushik
CHM	2045	3	Chemistry 1	3	MWF	9:00AM	9:50AM	1044	Ajeet	Kaushik
CHM	2045	5	Chemistry 1	3	MWF	11:00AM	11:50AM	1060	Tracy	Olin
CHM	2045	4	Chemistry 1	3	MWF	12:00PM	12:50PM	1003		STAFF
CHM	2045	6	Chemistry 1	3	MWF	2:00PM	2:50PM	1003	Tracy	Olin
CHM	2045L	1	Chemistry 1 Laboratory	1	T	10:00AM	11:50AM	2207	Tracy	Olin
CHM	2045L	2	Chemistry 1 Laboratory	1	T	1:00PM	2:50PM	2207	Tracy	Olin
CHM	2045L	3	Chemistry 1 Laboratory	1	T	3:00PM	4:50PM	2207	Ajeet	Kaushik
CHM	2045L	4	Chemistry 1 Laboratory	1	T	10:00AM	11:50AM	2209	Tracy	Olin
CHM	2045L	5	Chemistry 1 Laboratory	1	W	1:00PM	2:50PM	2207		STAFF
CHM	2045L	6	Chemistry 1 Laboratory	1	F	3:00PM	4:50PM	2207		STAFF
CHM	2045L	7	Chemistry 1 Laboratory	1	R	8:00AM	9:50AM	2207	Ajeet	Kaushik
CHM	2045L	8	Chemistry 1 Laboratory	1	T	1:00PM	2:50PM	2209	Tracy	Olin
CHM	2045L	9	Chemistry 1 Laboratory	1	W	1:00PM	2:50PM	2209		STAFF
CHM	2045L	10	Chemistry 1 Laboratory	1	F	3:00PM	4:50PM	2209		STAFF
CHM	2045L	11	Chemistry 1 Laboratory	1	R	8:00AM	9:50AM	2209	Ajeet	Kaushik
ECO	2013	1	Principles of Macroeconomics	3	TR	8:00AM	9:15AM	1049	Brian	Hornung
ECO	2023	1	Principles of Microeconomics	3	TR	9:30AM	10:45AM	1012	Brian	Hornung
ENC	1101	1	English Comp. 1: Expository and Argumentative	3	TR	12:30PM	1:45PM	1142	Sarah	Pearsall
ENC	1101	2	English Comp. 1: Expository and Argumentative	3	TR	12:30PM	1:45PM	1159	Kathleen	Hardesty
ENC	1101	3	English Comp. 1: Expository and Argumentative	3	TR	11:00AM	12:15PM	1158	Sarah	Pearsall
ENC	2210	1	Technical Writing	3	TR	9:30AM	10:45AM	1158	Kathleen	Hardesty
ENC	2210	2	Technical Writing	3	TR	11:00AM	12:15PM	1159	Kathleen	Hardesty
ENC	2210	3	Technical Writing	3	TR	2:00PM	3:15PM	1060	Sarah	Pearsall
ENC	2210	4	Technical Writing	3	TR	3:30PM	4:45PM	1060	Elisabeth	Rupp
ENC	2210	5	Technical Writing	3	MWF	10:00AM	10:50AM	1142	Elizabeth	Kelly
ENC	2210	6	Technical Writing	3	MWF	11:00AM	11:50AM	1159	Elizabeth	Kelly
ENC	2210	7	Technical Writing	3	MWF	2:00PM	2:50PM	1159	C. Wylie	Lenz

Code	Crs #	Sct #	Course Name	CR	Days	Start Time	End Time	Room	Faculty FN	Faculty LN
ENC	2210	8	Technical Writing	3	MWF	1:00PM	1:50PM	1159	C. Wylie	Lenz
EVR	1001	1	Environmental Science	3	MWF	9:00AM	9:50AM	1060	Jun	Kim
EVR	1001L	1	Environmental Science Lab	1	M	1:00PM	2:50PM	1052	Jun	Kim
EVR	1001L	2	Environmental Science Lab	1	W	1:00PM	2:50PM	1052	Jun	Kim
IDS	2144	1	Legal, Ethical, and Management Issues in Technology	3	MWF	10:00AM	10:50AM	1015	Susan	LeFrancois
IDS	2144	2	Legal, Ethical, and Management Issues in Technology	3	MWF	1:00PM	1:50PM	1017	Susan	LeFrancois
LIT	2000	1	Introduction to Literature	3	MWF	11:00AM	11:50AM	1158	C. Wylie	Lenz
MAC	2311	1	Analytic Geometry and Calculus 1	4	MTWF	9:00AM	9:50AM	1002	Jaeyoun	Oh
MAC	2311	2	Analytic Geometry and Calculus 1	4	MTWF	11:00AM	11:50AM	1048	Jaeyoun	Oh
MAC	2311	3	Analytic Geometry and Calculus 1	4	MTWF	1:00PM	1:50PM	1002	Adam	Rumpf
MAC	2311	4	Analytic Geometry and Calculus 1	4	MTWF	10:00AM	10:50AM	1002	Adam	Rumpf
MUL	2010	1	Music Appreciation	3	MWF	1:00PM	1:50PM	1142	Maryann	Brilleslyper
MUL	2010	2	Music Appreciation	3	MWF	2:00PM	2:50PM	1060	Maryann	Brilleslyper
PHY	2048	1	Physics 1	3	MWF	9:00AM	9:50AM	1003	Sesha	Srinivasan
PHY	2048	2	Physics 1	3	TR	9:30AM	10:45AM	1065	Emadelden	Fouad
PHY	2048	3	Physics 1	3	MWF	12:00PM	12:50PM	1045	Dhiraj	Maheswari
PHY	2048	5	Physics 1	3	MWF	1:00PM	1:50PM	1003	Dhiraj	Maheswari
PHY	2048	6	Physics 1	3	MWF	10:00AM	10:50AM	1003	Dhiraj	Maheswari
PHY	2048	4	Physics 1	3	TR	11:00AM	12:15PM	1067	Emadelden	Fouad
PHY	2048L	1	Physics 1 Laboratory	1	M	1:00PM	2:50PM	1051	Sesha	Srinivasan
PHY	2048L	2	Physics 1 Laboratory	1	W	1:00PM	2:50PM	1051	Sesha	Srinivasan
PHY	2048L	3	Physics 1 Laboratory	1	M	3:00PM	4:50PM	1051	Emadelden	Fouad
PHY	2048L	4	Physics 1 Laboratory	1	W	3:00PM	4:50PM	1051	Manimegalai	Ramamourty
PHY	2048L	5	Physics 1 Laboratory	1	T	10:00AM	11:50AM	1051	Manimegalai	Ramamourty
PHY	2048L	6	Physics 1 Laboratory	1	T	1:00PM	2:50PM	1051	Manimegalai	Ramamourty
PHY	2048L	8	Physics 1 Laboratory	1	W	10:00AM	11:50AM	1051	Manimegalai	Ramamourty
PHY	2048L	9	Physics 1 Laboratory	1	R	10:00AM	11:50AM	1051	Manimegalai	Ramamourty
PHY	2048L	10	Physics 1 Laboratory	1	R	1:00PM	2:50PM	1051	Manimegalai	Ramamourty
PHY	2048L	7	Physics 1 Laboratory	1	F	1:00PM	2:50PM	1051	Sesha	Srinivasan
STA	2023	03GH	Statistics 1	3	MW	4:00PM	5:15PM	1015	Kevin	Calkins
STA	2023	2	Statistics 1	3	MWF	9:00AM	9:50AM	1062	Shawn C.	Hedman
STA	2023	1	Statistics 1	3	MWF	10:00AM	10:50AM	1064	Shawn C.	Hedman

MAC 2311 Analytic Geometry & Calculus 1

Spring semester 2023

POSTED NOV 15, 2022
SUBJECT TO CHANGE

Course Information

Course Number and Title: MAC 2311 Analytic Geometry & Calculus 1

Credit Hours: 4

Current Academic Term: Spring 2023

Official Catalog Course Description: This course is an introduction to analytic geometry; limits; continuity; differentiation of algebraic, trigonometric, exponential and logarithmic functions; applications of the derivative; inverse trigonometric functions; differentials; introduction to integration; and the fundamental theorem of calculus.

Gordon Rule (6A-10.030): No

Prerequisites: Any of the following:

a grade of C in a MAC course numbered 1147 or higher

IB credit for a MAC course numbered 1147 or higher.

Required Text: Openstax Calculus 1 by Gilbert Strang et al.
ISBN-13: 978-1-394-01415-6

Equipment and Material: N/A
Course Objectives:
To help the students build up a solid foundation in mathematical reasoning by acquiring important building blocks and skills. Also, giving the students the tools to apply the learned knowledge to solve routine and non-routine problems with emphasis placed on solving applications by mathematical modeling. At the end of this course, you should be able to:

Course Learning Outcomes: The following topic will be used to measure the student learning outcome to demonstrate fluency in mathematics concepts," which corresponds to the Mathematics Reasoning Competency:

1. Illustrate fundamental understanding and modeling uses for critical classes of STEM functions: linear, power, exponential, logarithmic, sinusoidal, and sigmoidal.
2. Interpret, use, and calculate derivatives of basic STEM functions and simple combinations of STEM functions.
3. Interpret, use, and calculate anti-derivatives of basic STEM functions and simple combinations of STEM functions.
4. Appreciate and demonstrate a computational and conceptual understanding of average and instantaneous rates of change.
5. Develop, analyze, and interpret mathematical models in an interdisciplinary setting.

Additionally:

6. Demonstrate a computational and conceptual understanding of accumulation of a function.
7. Use computers as appropriate to assist in analyzing and solving mathematical problems. Recognize data as fundamental to mathematical work.

8. Clearly communicate solutions to multi-step mathematics problems through careful, organized, and well-annotated work.

Grading Scale

Grade	A	B+	B	B-	C+	C	D	F
Percentage	90%	87%	83%	80%	77%	70%	60%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

Assignment/Evaluation Methods

Homework	10%
Projects	10%
Quizzes	10%
Exams	45%
Final Exam	25%
Total	100%

Schedule of Topics by week

Week	**Topics**	**Chapter/Sections**
1	Function and Trig Review	1.1 – 1.5
2	Limits	2.2, 2.3, 2.4
3	Dimensional Analysis, tangent lines, derivatives	3.1, 3.2
4	Derivative rules, rates of change	3.3, 3.4
5	Derivatives of trig functions, chain rule, **Midterm #1**	3.5, 3.6
6	Chain rule, implicit differentiation	3.6, 3.7
7	Exponential & log functions, related rates	3.9, 4.1
8	Linear approximation, maxima and minima	4.2, 4.3
9	Derivatives and shape of graphs, asymptotes,	4.5, 4.6
10	Optimization, **Midterm #2**	4.7
11	L'hopital's rule, Newton's method	4.8, 4.9
12	Approximating area	5.1
13	Definite Integrals; **Midterm #3**	5.2
14	Fundamental Theorem of Calculus	5.3
15	Calculus and Data	Project
16	Review for final	

STA 2023 Statistics 1

Fall semester 2022

POSTED July 5, 2022
SUBJECT TO CHANGE

Course Information

Course Number and Title: STA 2023 Statistics 1
Credit Hours: 3
Current Academic Term: Fall 2022

Course Offerings and Instructors

MWF 4:00 – 4:50PM – Dr. Jikhan Jeong
MW 4:00 – 5:15PM – Mr. Kevin Calkins

Official Catalog Course Description: This course covers probability, random variables, hypothesis testing, confidence interval estimation, small sample methods, correlation, simple linear regression, and nonparametric statistics.

Gordon Rule (6A-10.030): No

Prerequisites: None

Required Text: ***OpenIntro Statistics (4th Edition)*** by David Diez, Mine Cetinkaya-Rundel & Christopher Barr
ISBN: 9781943450077. A free PDF version is available for this book. See https://www.openintro.org/book/os/

Equipment and Material: Office 365 with Excel, R and RStudio (freeware), and Minitab are available through the MyApps Florida Poly portal (https://apps.floridapoly.edu/). No knowledge of these programs is assumed. Data- and computationally-based curricular materials available at the StatPREP site will also be explored (http://www.statprep.org/LittleAppSite/Activities.html)

Course Objectives:
This introductory course assumes no prior knowledge and presents the basic statistical concepts and real-world application emphasizing data collection and analysis. This course not only provides a conceptual foundation required for advanced upper-level classes but also helps the students become an educated data user and consumer. The first half of the course covers survey design and experiments to collect data from samples that are representative of a population and graphical and numerical representation of data using descriptive measures and relation between variables. The second half of the course focuses on inferential statistics where random samples are used to draw conclusions about the population of interest. The primary goal of this course is to help students understand the process of framing a research question, collect and analyze relevant data and interpret the results to find solutions to the posed research questions. Students will work either individually or as part of a team on a project where statistical and data analytics tools and concepts will be put into practice.

Course Learning Outcomes:

1. Identify and evaluate alternative sampling techniques that best fit the objectives of the data being considered.
2. Apply the correct descriptive statistics to best address the data being analyzed.
3. Evaluate the appropriate data visualization that helps the audience to interpret the data.
4. Apply the principles of probability to quantify the likelihood of alternative outcomes.
5. Evaluate the appropriate inferential statistics to address the hypothesis under consideration.
6. Solve a real-world data analysis problem using statistical tools by working either individually or

in teams of two on a final course project.

Course Policies

Attendance

- Students are expected to attend all class meetings unless sick or some other documented emergency prevents attendance.
- Class participation and presentation will represent a significant portion of the class grade.

Late Work/Make-up work

Make-up exams will be given only in extreme circumstances with a documented excuse. If you will miss an exam because you are participating in a College-sponsored activity, inform your instructor before the exam and provide them with documentation.

Grading Scale

The following grading scale will be used for this class.

A	93% – 100%	B	83% – <86%	C	73% – <76%	D	63% – <66%
A–	90% – <93%	B–	80% – <83%	C–	70% – <73%	D–	60% – <63%
B+	86% – <90%	C+	76% – <80%	D+	66% – <70%	F	0% – <60%

(See also University Grading Policy).

Assignment/Evaluation Methods

- Exams: There will be two midterm exams.
- Homework: There will be some homework assignments that may involve the use of the statistical programming tool or Excel.
- Final Project: This is a data analysis assignment that involves application of concepts covered in the course on a data set.
- Final Exam: There will be a cumulative final exam.

Assignment	Percentage
Participation & In-class Quizzes	10%
Homework	20%
Data Analysis Project	10%
2 Midterms	35% (17.5% each)
Comprehensive Final Exam	25%
Total	100%

Participation in all course activities is a very important element of this course and is a basic expectation. Course participation consists of active and respectful involvement in class discussions, peer feedback, postings, replies, projects, and other interactions. The participation grade considers quality, quantity, and timeliness of student participation.

Schedule of Topics by week

Week	Topic	Reading

1	Introduction to the course	
	Introduction to data: statistics, measurement levels, population vs sample	Ch. 1
2	Summarizing data: data collection, qualitative vs quantitative data, measures of central tendency	Ch. 2
3	Summarizing data: describing distributions, measures of variability	Ch. 2
	Introduction to probability	Ch. 3
4	Independent events, law of large numbers, sampling with and without replacement	Ch. 3
	Conditional probability, tree diagrams	Ch. 3
5	Random variables and expectation	Ch. 3
	Probability distributions: Bernoulli, binomial and geometric	Ch. 4
6	Probability distributions (cont.)	Ch. 4
	Exam 1	
7	Distributions of random variables: transformations, Z-scores, Normal distribution	Ch. 4
	Foundations for inference: sampling distribution	Ch. 5
8	Foundations for inference: Central Limit Theorem, Confidence intervals	Ch. 5
9	Foundations for inference: Hypothesis testing	Ch. 5
10	**Exam 2**	
	Project Assignment and statistical software demonstration	
11	Inference for categorical data: inferences for proportions, Chi-Square	Ch. 6
12	Inference for numerical data: t-distribution, paired distribution	Ch. 7
13	Inference for numerical data: non-paired distribution, power calculations	Ch. 7
14	Comparing many means with ANOVA	Ch. 7
	Introduction to linear regression. ***Thanksgiving Break***	Ch. 8
15	Introduction to linear regression (cont.)	Ch. 8
16	Introduction to linear regression (cont.)	Ch. 8
	Final Project and Final Exam Review	

This is a tentative schedule, and it may be modified as required based on the progression of the class.