

# IUSB M111

## MATHEMATICS IN THE WORLD

### Fall 2008

Instructor: D. Wolf <http://mypage.iusb.edu/~dewolf/>

Text: For All Practical Purposes, 7<sup>th</sup> Edition

Calculator: (Minimal) A calculator that has at least a square root key. You may use your calculator on all exams and quizzes. I recommend a TI30.

You are responsible for mastering the operation of whatever calculator you have chosen to use.

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Office Hours (Elkhart): 9:00 – 10:00 AM TuTh

A “Computer Literacy” component is part of this class. There will be two assignments dealing with statistics and the use of Microsoft Excel. I will present the basics of Excel as required. If you choose a different statistical package, it is your responsibility to learn the basics of its usage. [The Excel assignments will not be accepted late.](#)

#### HOW GRADES ARE DETERMINED

Exams 1,2,3,4	4x10%	40%
Final Exam	Comprehensive	30%
Excel Assignments	2 x 10%	20%
Participation	See Comments below	10%

Exam Protocol: Note cards may be used as well as your calculator.

<b>Grading Scale:</b> <b>(Percent)</b>	<b>90 – 100 = A- to A</b>	<b>80 – 90 = B- to B+</b>
	<b>70 – 80 = C- to C+</b>	<b>60 – 70 = D- to D+</b>

#### SCHEDULE

Days	Chapter	Topics
3 Days	Ch. 5	<b>Individuals and variables</b> <b>Exploring data: Histograms and Pie Charts</b> <b>Exploring data: Mean, Median, Quartiles, 5-Number Summary, Box Plots</b> <b>Variance and Standard Deviation</b> <b>Normal Distributions: Shape, Quartiles, 68-95-99.7 Percent Rule</b>
2 Days	Ch. 6	<b>Display relationship between two random variables:</b> <b>Explanatory and Response Variables, Scatterplots</b> <b>Regression Lines, Estimation and Prediction Based Upon the Regression Equation</b>

		<b>Correlation and Least Squares Regression</b> <b>Excel Assignment #1 – Linear Regression</b> <b>Exam 1 – Chapters 5 and 6</b>
4 Days	Ch. 7	<b>Sampling and Surveys, Population</b> <b>Bad Sampling Methods, Bias,</b> <b>Simple Random Sampling, Random Tables, Variability</b> <b>Experiments, Treatments, Observational Studies</b> <b>Confounding and The Placebo Effect</b> <b>Parameters and Statistics, Sampling Distribution of Sample Proportions</b> <b>95% Confidence Interval for a Population Proportion, Margin of Error</b> <b>Excel Assignment #2 – Charting Survey Data and Margin of Error</b>
4 Days	Ch. 8	<b>Random Phenomenon, Sample Spaces, Events</b> <b>Discrete Probability Models, Probability Histograms, Probability Rules</b> <b>Equally Likely Outcomes, Counting Techniques, Mean of a Probability Model</b> <b>Statistical Inference, Sampling Distribution of Sample Means</b> <b>The Central Limit Theorem</b> <b>Exam 2 – Chapters 7 and 8</b>
2 Days	Ch. 1	<b>Basics of Graphs: Vertices, Edges, Valence</b> <b>Euler Circuits and Euler’s Theorem</b> <b>The Chinese Postman Problem, Circuits with Reused Edges</b>
3 Days	Ch. 2	<b>Hamiltonian Circuits – The Traveling Salesman Problem</b> <b>Nearest Neighbor and Sorted Edges Algorithms</b> <b>Kruskal’s Algorithm – Minimum Cost Spanning Trees</b> <b>Tasks and Order-Requirement Graphs</b> <b>Critical Path and Optimal Completion Time</b>
3 Days	Ch. 3	<b>The List Processing Algorithm</b> <b>Dependent and Independent Tasks</b> <b>Exam 3 – Chapters 1, 2, 3</b>
3 Days	Ch. 4	<b>Review of Linear Equations and Inequalities</b> <b>Mixture Charts, Resource Constraints, Feasible Regions</b> <b>Profit Formula and the Corner Point Principle – Optimal Solutions</b> <b>Mixture Problems: Various Combinations of Resources and Products</b>
2 Days	Ch. 18	<b>Geometric Similarity – Proportional Growth</b> <b>Relationship between Linear Scale, Area, and Volume</b> <b>Exam 4 – Chapters 4 and 18</b>
2 Days	Ch. 19	<b>Translational, Reflective, and Rotational Symmetry</b> <b>Spiral, Phyllotaxis, and Fibonacci Numbers</b> <b>Golden Ratio and Geometric Average</b>
2 Days		<b>Review for Comprehensive Final Exam</b>

### **IMPORTANT INFORMATION**

- Homework is assigned but not collected. Homework problems are routinely selected for classroom discussion and exams. Questions concerning homework problems are welcomed and encouraged.
- Exams: You have until the **beginning of the next scheduled class session** to make up a missed exam. If it is not made up by then, your score on it will be zero. **It is your responsibility to contact me and make arrangements to take a missed exam.**
- Final Exam: The final exam cannot be made up. If you miss it, your grade on it will be zero and you will fail the course.

- **It is your responsibility** to contact me concerning special circumstances affecting your performance or status in this class. Contact information is readily available through OnCourse and on my website.
- **Participation: More than attendance**, participation includes **punctuality to class, remaining in class** the entire session, **working at class assignments**, maintaining an **appropriate educational atmosphere** within the classroom, and keeping the instructor informed of special circumstances. **If you are not in class, significantly/habitually late to class, or consistently in disregard of rules regarding cell phones or other electronic devices, your participation score will be adversely affected at my discretion.**
- **HAVE CELL PHONES AND ALL OTHER ELECTRONIC DEVICES (MUSIC PLAYERS, LAP TOPS, ETC.) TURNED OFF AND OUT OF SIGHT AT ALL TIMES. FAILURE TO ADHERE TO THIS POLICY WILL AFFECT BOTH YOUR GRADE AND STATUS IN THIS CLASS.**

**NOTE: I will make extensive use of OnCourse to provide announcements, homework assignments, links to online resources, extra credit opportunities, and grades. Failure to activate your OnCourse account and use it regularly will be detrimental to your success in this course.**

**Free Math tutoring is available at the Mathematics Department (NS-310, 520-4335); check schedule at [www.iusb.edu/~sbmath](http://www.iusb.edu/~sbmath) during the first week of the class.**

**Free tutoring is also available through the Academic Learning Center 520-5022**

#### **ADA STATEMENT**

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact Director of Disabled Student Services (Administration Building, room A120, telephone number 520-4832), as soon as possible to work out the details. Once the director has provided you with a letter attesting to your needs for modification, bring the letter to me

**Religious Accommodation Statement and Academic Honesty Statement** are given at <http://www.iusb.edu/~sbmath/pdf/statements.pdf>

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