

## Imperial Valley College Course Syllabus – Course Title and number

### Basic Course Information

Semester	<b>S 2014</b>	Instructor Name	<b>Barbara Nilson</b>
Course Title & #	<b>MA110 Number System for Elem Tchrs</b>	Email	<b>bnilson@imperial.edu</b>
CRN #	<b>20141</b>	Webpage (optional)	
Room	<b>2728</b>	Office	<b>2762</b>
Class Dates	<b>1/22/14 – 5/14/14</b>	Office Hours	
Class Days	<b>W</b>	Office Phone #	<b>760-355-6477</b>
Class Times	<b>1830-2140</b>	Office contact if student will be out or emergency	<b>Ofelia Duarte – Staff Sec II</b> 760-355-6155
Units	<b>3 units</b>		

### Course Description

Recommended for students who are working towards a teaching credential in elementary education. Topics discussed are decimals and percents, geometry, geometric constructions, rotations, translations, measurements and problem solving. (CSU) (UC credit limited. See a counselor)

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Geometric construction by hand and use of technology (ILO3, ILO4)
2. Written mathematical communication skills (ILO1, ILO4)
3. Transformation and tessellation projects (ILO3, ILO4)

### Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Recognize two and three dimensional geometry, and solve a number of applications.
2. Demonstrate the basic idea of congruence and similarity and actively develop a number of geometric constructions.
3. Identify and apply different kinds of transformations, and various types of symmetrics.
4. Recognize a variety of geometric figures, and be able to use and apply formulae in both geometric and non-geometric context.
5. Graph using the Cartesian system of coordinates and will recognize the relationship that exists between algebra and geometry.
6. Solve word problems using the basic concepts of geometry and will identify various geometric patterns.
7. Demonstrate a knowledge of statistics and probability.

### Textbooks & Other Resources or Links

- Bassarear, Tom (2011). *Mathematics for Elementary School Teachers* (5th/e). Boston Houghton Mifflin. ISBN: 978-0840054630
- Billstein, et.al. (2012). *A Problem Solving Approach to mathematics for Elementary School Teachers* (11th/e). Reading, MA Addison Wesley. ISBN: 978-0321756664
- Long, DeTemple (2011). *Mathematical Reasoning for Elementary Teachers* (6/e). Reading, MA Addison-Wesley. ISBN: 978-0321693129
- Software as needed:
  - Logo
  - Geometers Sketchpad
  - Stat Explorer

### Course Requirements and Instructional Methods

**MATERIALS:** (Must be brought to every class.)

Calculator  
Compass  
Protractor

## Imperial Valley College Course Syllabus – Course Title and number

---

Straightedge  
Scissors (opt)  
Ziploc bag or other similar container for small items

### HOMEWORK/PROJECTS

The HW and projects are approximately half of your grade, so be conscientious and diligent about turning these in. They should be clearly legible, labeled with the appropriate information (name, assignment number or title, date), and college quality. Minimum quality will result in minimum points.

### EXAMS/PROJECTS/FINAL

Exam1 Ch 16-17  
Projects for Ch 18-22.  
Exam2 Ch 23-26  
Group Project - Oral Ch 29-30  
Final Exam – comprehensive, all material from the course

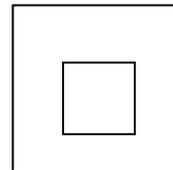
### PROJECTS

#### TRANSFORMATION - 60 Points (Ch 22)

The figure below is NOT 2 Squares

Use Geometer's Sketchpad to create one geometric sketch with the following criteria:

- The sketch must include all of the following transformations: (10 pt ea)
  - 1) Translation
  - 2) Rotation
  - 3) Reflection
  - 4) Size transformation (Similarity)
- It must have at least 2 different polygons, such as triangles and quadrilaterals (5 pt)
- It must be one drawing, not several different sketches of each transformation (15 pt)



**Caution:** Each transformation must be separately defined. For example, a size transformation cannot be inside each other such as in these two squares that I placed inside the other. This is no longer two squares – it is one octagon and one square.

#### TESSELLATION – 35 Points (This will be demonstrated in class and is shown in Ch19.)

- Choose a polygon and transform it using rotation and/or translation – include a written description of your steps - 15pt.
- Make an **original**\* curved tessellation using your transformed polygon with at least 3 rows and 4 figures in each row – 15pt.
- Include the actual polygon used to create the tessellation – you may tape or staple it to your project – 5pt.

The tessellation does not have to have a recognizable figure, but – **BONUS of 5 points** if it has a recognizable animal or caricature that would be appropriate for use in elementary school.

*\*I have had problems with students going online and plagiarizing. If I am not sure how you developed your project, I might ask you to demonstrate or explain your work.*

#### COMPASS CONSTRUCTION – (Ch 20 shows the methods of construction.) 50 points

## Imperial Valley College Course Syllabus – Course Title and number

---

- 1) Use a compass and straight edge as your only tools to create an accurate drawing of geometric shapes.
- 2) Use Standard 8 ½ x 11 inch plain white paper. (5pt deduction for any other paper)

Graded on the following criteria:

**10pt - CONSTRUCTED** – use the techniques of construction from textbook. Your construction must have appropriate skill level for a college project. The project should reflect skills in use of construction.

**20pt - CONGRUENT** – All line, segments, curves, and areas that display symmetry must be congruent

**10pt - CLARITY** – All lines should be as consistent in pressure as possible. All lines should be well defined in width, i.e. the pencil or writing tool should be very sharp. Extra or unnecessary lines should be erased and the paper in clean condition. Intersections should be clean and as exact as possible.

**5 pt – CLEAN** – Paper should be clean, no creases or fold marks, no sign of erasures,

**5 pt - CENTERED** – design centered on the page or appropriately placed for the construction design.

### **Ch29-30 STATISTICS GROUP PROJECT**

You will not have an exam, rather a group project and oral presentation. Failure to participate in the process and the oral presentation will result in a reduced grade and/or failure of the project.

#### **Group Project – 100 points**

Survey of Typical IVC Students

1. Choose group members – 3 to 5 persons per group
2. Choose a topic for your survey – What do you want to know about IVC students? State your reasons for choosing this topic, your hypothesis (result you expect), and justification for your hypothesis.
3. Formulate a well stated question and determine your method of asking the question (anonymous slip of paper, face-to-face question, or ...?)
4. Decide how to take a random sample of the IVC students (day/night; location on campus; male/female; age, etc.)
5. Survey enough students to have 100 usable data. Report reasons that some may have been thrown out of your results.
6. Make 2 visual models - graphs and /or chart to show your findings. They must be appropriately labeled and mathematically correct. They can be digital or physical. Explain your graphs – title, labels, numbers, results – as though your audience does not know how to read them.
7. Find mean, median, mode, and outliers on your data. Explain why some of these averages may not be possible. Explain which “average” you would use to report this survey. Find outliers (if appropriate) and explain the method you used to find outliers.
8. Present your findings to the class. Give a conclusive statement to your findings and if it supported your hypothesis. Explain what you would ask next if you could continue this survey. Discuss difficulties encountered during this project.
9. There is no report to turn in, but you will assess the other members of your team for purposes of participation.

#### **Grading Criteria**

5pt – At least 100 pieces of data collected

5pt – Participation – all persons in group participated in study **and** presentation

10pt – state hypothesis and rationale - #2 above

## Imperial Valley College Course Syllabus – Course Title and number

10pt – Question is well stated and method of collecting data is explained – #3

10pt – Random sampling is used and explained – #4

20pt – 2 Graphs (minimum) – the choice of graphs is appropriate, visibly understood, mathematically correct. Compare them to each other and point out how the information is visually understood - #6

20pt – Averages stated and explained – #7

20pt – Conclusions: hypothesis valid (or not) and difficulties with the project. What went well, what did not go so well. Summarize the “typical IVC student.” – #8

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement.

### Course Grading Based on Course Objectives

#### GRADING POLICY

Your grade will be comprised of the following items and approximations:

Homework and 3 individual projects	400 points	~40%
10 quizzes	100 points	~10%
1 group project	100 points	~10%
2 exams (100 pts ea.) and final (200 points)	400 points	~40%
Total 1000 points	1000 points	~100%

Your final grade will be based on the following points and percentages:

90% to 100%	900-1000 points	A
80% to 89%	800-899 points	B
70% to 79%	700-799 points	C
60% to 69%	600-699 points	D
Below 60%	Below 600 points	F

### Attendance

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student’s status will be the same as that of any other student who desires to add a class. It is the student’s responsibility to drop or officially withdraw from the class. See General Catalog for details.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as ‘excused’ absences.

### Classroom Etiquette

- Bottled water with leak-proof lids/caps is the only food or drink allowed in the room. (Styrofoam cups with lids are prohibited.)
- Cell phones or other electronic communication devices can only be used for appropriate math purposes. They may not be used during an exam. Texting or using your cell phone for calls during class can be grounds for dismissal from class.
- Disruption of other students will result in a reprimand or expulsions from the class for that day. A second offense can result in administrative discipline.
- Disruption in my class is defined as behavior that interferes with another student's ability to learn or is distracting to myself or others. Some examples are: talking with other students during lecture, ringing phones, texting, reading non-math materials such as magazines, watching and/or playing videos or games on an electronic device, cleaning out your backpack...
- Use only non-transmitting calculators during exams (i.e. no cell phones or other transmittal devices).
- Quality work is expected. If a student meets the stated requirements for an assignment, but does it in a minimal fashion, the maximum grade for the product will be points valued at "C". To earn points valued at "B" or "A" there must be reasonable quality in the work.
- Multiple infractions of my policies can result in a lowering of your grade by 1 letter.

### Academic Honesty

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following: (a) plagiarism;(b) copying or attempting to copy from others during an examination or on an assignment;(c)communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment, (e) use of a commercial term paper service

### Additional Help – Discretionary Section and Language

**The instructor can add the information pertinent to his or her class here. Some suggested language:**

- Blackboard support center: <http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- Learning Labs:There are several 'labs' on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Learning Services (library). Please speak to the instructor about labs unique to your specific program
- Library Services:There is more to our library than just books. You have access to tutors in the learning center, study rooms for small groups, and online access to a wealth of resources.

### Disabled Student Programs and Services (DSPS)

Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S

## Imperial Valley College Course Syllabus – Course Title and number

office is located in Building 2100, telephone 760-355-6313 if you feel you need to be evaluated for educational accommodations.

### Student Counseling and Health Services

Students have counseling and health services available, provided by the pre-paid StudentHealth Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

### Student Rights and Responsibilities

Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at [http://www.imperial.edu/index.php?option=com\\_docman&task=doc\\_download&gid=4516&Itemid=762](http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)

### Information Literacy

Imperial Valley College is dedicated to help students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

### Anticipated Class Schedule / Calendar

#### B Nilson S14 – Ma 112

Week	Week Begin	Lecture/ Readings	Quizzes/ Exams	Homework Due	Homework Assigned	Holidays
1	1/20/2014	16.1-16.3			16.2.1, 16.3.3, 16.3.17, 16.4.3, 16.5.1	
2	1/27/2014	16.4-16.5, 17.1-17.2	Quiz1 Ch16	HW Ch16 due	17.1.1, 17.1.4, 17.1.5, 17.1.14, 17.2.2	
3	2/3/2014	17.3-17.4	Quiz2 Ch17	HW Ch17a due	17.3....	
4	2/10/2014	18.1-18.2, 21.1	Quiz3 Ch17	HW Ch17b due		Lincoln BD 2/14-15
5	2/17/2014	21.2	Exam Ch 16-17	HW Ch18 due		President's 2/17
6	2/24/2014	22.1-22.4	Quiz4 Ch18	HW		
7	3/3/2014	22.5, 20.1-20.2	Quiz5 Ch21			
8	3/10/2014	20.3, 19.1-19.2	Quiz6 Ch22			
9	3/17/2014	23.1-23.2, 24.1-24.2	Quiz7 Ch19			

Imperial Valley College Course Syllabus – Course Title and number

10	3/24/2014	25.1- 25.3, 26.1	Quiz8 Ch23			
11	3/31/2014	26.2	Quiz9 Ch25			
12	4/7/2014	Ch 29	Exam Ch23- 26			
13	4/14/2014	Ch 30				Spring Break 4/21- 26/2014
14	4/28/2014	Ch 30	Quiz10 Ch30			
15	5/5/2014	Group Project final review				
16	5/12/2014	Final Exam				