Continuing Education
1717 S. Chestnut Ave.
Fresno, CA 93702-4709
(800) 372-5505
https://ce.fresno.edu

STEM-903 – SketchUp For Teachers

Independent Study Online Course Syllabus

Instructor: Eric Westland, M.Ed. **Phone:** (435) 625-1399 **Email:** eric.westland.fpu@gmail.com **Website:** westland.dscloud.me/wordpress/	**Number of Graduate Semester Units:** 3 units **Target Audience:** 3rd – 14th grade teachers **Course Access:** ce-connect.fresno.edu

Course Description

Students love to draw and create (teachers too!). Add a computer to this mix and students will discover they can create three-dimensional projects using powerful, yet easy to learn, modeling tools. SketchUp is a free program that is powerful enough for commercial applications, yet simple enough that a 3rd grader can learn to use it.

Being completely free, you and your students will be able to use these programs both at school and home! It also runs on Macs, PC's and Chromebooks! Follow along with instructor-created screencasts to help you master the basics of SketchUp and explore ways to incorporate it into almost any project.

No prerequisite knowledge with is required.

Note: There is no required textbook for this course, but a recommended textbook may be purchased separately.

Required Texts and Course Materials

Optional Textbook: *Google SketchUp: The Missing Manual by Chris Grover*, Publisher: O'Reilly Media / Pogue Press, ISBN-13:9780596521462. This is an excellent resource, but you may find the instructor-created materials along with Internet resources work as well, so it is not required for this course.

Note: Students are responsible for purchasing their own textbook, analyzing the content, and applying what they learned to the course assignments. You are welcome to purchase used, ebook, or new versions to save money. You can order the book directly from the publisher or from one of several discount aggregators (for example): http://books.nettop20.com

Online Resources: Relevant online resources that support the course content and encourage further investigation will be available throughout the course assignments. Active hyperlinks are utilized throughout the course and will link to the appropriate information when clicked. These include videos, podcasts, worksheets, online activities, journal articles and other resources.

Moodle: Moodle is a web-based learning management system used to support flexible teaching and learning in both face-to-face and distance courses (e-learning).
https://moodle.org // https://moodle.org/demo // https://docs.moodle.org

Course Dates

Self-paced; students may enroll at any time and take up to one year, from the date of registration, to complete assignments. Students may complete assignments in no less than three weeks for a 3-unit course (one week per unit).

National Standards Addressed in This Course

National Board for Professional Teaching Standards (NBPTS)
(http://www.nbpts.org/standards-five-core-propositions/)

First published in 1989 and updated in 2016, *What Teachers Should Know and Be Able to Do* articulates the National Board's Five Core Propositions for teaching. The Five Core Propositions - comparable to medicine's Hippocratic Oath — set forth the profession's vision for accomplished teaching. Together, the propositions form the basis of all National Board Standards and the foundation for National Board Certification. Course assignments have been designed so students can demonstrate excellence against these professional teaching standards whenever possible.

- Proposition 1: Teachers are committed to students and their learning
- Proposition 2: Teachers know the subject they teach and how to teach those subjects to students
- Proposition 3: Teachers are responsible for managing and monitoring student learning
- Proposition 4: Teachers think systematically about their practice and learn from experience
- Proposition 5: Teachers are members of learning communities

National Educational Technology Standards (NETS)

- Facilitate and Inspire Student Learning and Creativity
- Design and Develop Digital Age Learning Experiences and Assessments
- Model Digital Age Work and Learning
- Promote and Model Digital Citizenship and Responsibility
- Engage in Professional Growth and Leadership

McRel Technology Standards www.mcrel.org/standards-benchmarks

1. Knows the characteristics and uses of computer hardware and operating systems
2. Knows the characteristics and uses of computer software programs
3. Understands the relationships among science, technology, society, and the individual
4. Understands the nature of technological design
5. Understands the nature and operation of systems.
6. Understands the nature and uses of different forms of technology

Continuing Education Program Student Learning Outcomes

CE 1	Demonstrate proficient written communication by articulating a clear focus, synthesizing arguments, and utilizing standard formats in order to inform and persuade others, and present information applicable to targeted use.
CE 2	Demonstrate comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.

CE 3	Reflect on their personal and professional growth and provide evidence of how such reflection is utilized to manage personal and professional improvement.
CE 4	Apply critical thinking competencies by generating probing questions, recognizing underlying assumptions, interpreting and evaluating relevant information, and applying their understandings to the professional setting.
CE 5	Reflect on values that inspire high standards of professional and ethical behavior as they pursue excellence in applying new learning to their chosen field.
CE 6	Identify information needed in order to fully understand a topic or task, organize that information, identify the best sources of information for a given enquiry, locate and critically evaluate sources, and accurately and effectively share that information.

Student Learning Outcomes (SLOs) for This Course

Student Learning Outcomes for This Course By the end of this course student will be able to:	**National Standards Addressed in This Course***	**Continuing Education Program Student Learning Outcomes Addressed****
1. Create a model in SketchUp	(NBPTS 2) (NETS-T 1,2,3,4) (McRel Tech 1, 3,4)	CE 1
2. Use tools and concepts necessary to design and draw throughout several phases of a project.	(NBPTS 2) (NETS-T 1,2,3,4) (McRel Tech 3,4)	CE 6
3. Edit models in development.	(NBPTS 1, 4) (NETS-T 1,2,3,4) (McRel Tech 1, 3,4)	CE 6
4. Incorporate projects developed using SketchUp into different curriculum areas	(NBPTS 1,2,4,5) (NETS-T 1,2,3,4,5) (McRel Tech 3)	CE 2
5. Introduce critical thinking skills to students while developing models.	(NBPTS 1,2,3) (NETS-T 1,2,3) (McRel Tech 4)	CE 4
6. Merge models into a common scene to create a collaborative project.	(NBPTS 1,2,4,5) (NETS-T 1,2,3,4,5) (McRel Tech 4)	CE 4
7. Leverage advanced presentation techniques for viewing and presenting models in 3D to students, families and staff.	(NBPTS 2,5) (NETS-T 1,2,3,4,5) (McRel Tech 1)	CE 6

* Please refer to the section on **National Standards Addressed in This Course**
** Please refer to the section on **Continuing Education Program Student Learning Outcomes**

Topics, Assignments, and Activities

Module Module Title	Module Assignments and Activities	Points Possible for Each Assignment
Welcome Module	• Introduction video • Course Syllabus • Introduce Yourself Forum • Moodle Online Tutorial	
Module 1 – Introduction	• Share a brief introduction of yourself.	4 pts
Module 2 – An Introduction to SketchUp and 2D Drawing	• Reading and video tutorials	
Module 3 – Two-Dimensional Drawing Exercises	• Six two-dimensional drawings, five guided and one related to your teaching area.	65 pts
Module 4 – 3D Drawing Basics	• Reading and video tutorials	
Module 5 – Your First 3D Project	• Model a dog house or project of your choice while following along with the video tutorials	20 pts
Module 6 – Materials and Textures	• Reading and video tutorials while adding materials and textures to your first 3D project.	80 pts
Module 7 – Components and The 3D Warehouse	• Reading and video tutorials	25 pts
Module 8 – Building a Structure	• Modeling a 3D, single-story structure incorporating skills introduced so far. Project is supported by reading and video tutorials.	60 pts
Module 9 – Culminating Project	• A 3D model of your choice that you can incorporate with your teaching.	60 pts
Course Wrap-up – Grading and Evaluation	• Final Reflection Forum • Course Evaluation • Course Completion Checklist • Grade Request / Transcript Request	
	TOTAL POINTS	**314 pts**

Grading Policies, Rubrics, and Requirements for Assignments

Grading Policies

- Assignments will be graded per criteria presented in the course rubrics.
- A = 90-100% and B = 80-89%, (anything below 80% will not receive credit.)
- The discernment between an A or a B letter grade is at the discretion of the instructor based on the quality of work submitted (see course rubrics).
- Coursework falling below a B grade will be returned with further instructions.

- All assignments must be completed to receive a grade and are expected to reflect the quality that teacher-training institutions require of professional educators. If completed assignments do not meet this standard, students will be notified with further instructions from the instructor.

Grading Rubrics

Grade	Percent	Description	Rubric
A	90-100%	Excellent	Meets all course / assignment requirements with significant evidence of subject mastery and demonstration of excellent graduate level professional development scholarship.
B	80-89%	Very Good	Adequately meets criteria for all course/assignment requirements - demonstrates subject competency with very good graduate level professional development scholarship.
NC	Below 80%	Unacceptable	Does not meet the minimum criteria for all course/assignment requirements and demonstrated little, if any, evidence of acceptable graduate level professional development scholarship.

Writing Requirements

- **Superior:** Writing is clear, succinct, and reflects graduate level expectations. Clearly addresses all parts of the writing task. Maintains a consistent point of view and organizational structure. Include relevant facts, details, and explanations.
- **Standard:** Writing is acceptable with very few mistakes in grammar and spelling. Addresses most parts of the writing task. Maintains a mostly consistent point of view and organizational structure. Include mostly relevant facts, details, and explanations.
- **Sub-standard:** Writing contains noticeable mistakes in grammar and spelling. Does not address all parts of the writing task. Lacks a consistent point of view and organization structure. May include marginally relevant facts, details, and explanations.

Lesson Plan Requirements

- **Superior:** Instructional goals and objectives clearly stated. Instructional strategies appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is clearly delineated and authentic. All materials necessary for student and teacher to complete lesson clearly listed.
- **Standard:** Instructional goals and objectives are stated but are not easy to understand. Some instructional strategies are appropriate for learning outcome(s). Method for assessing student learning and evaluating instruction is present. Most materials necessary for student and teacher to complete lesson are listed.
- **Sub-standard:** Instructional goals and objectives are not stated. Learners cannot tell what is expected of them. Instructional strategies are missing or strategies used are inappropriate. Method for assessing student learning and evaluating instruction is missing. Materials necessary for student and teacher to complete lesson are missing.

Discussion Forum Requirements

- **Superior:** Response was at least 1 page (3 fully developed paragraphs) in length. Thoroughly answered all the posed questions, followed all the assignment directions, proper grammar and no spelling errors. Language is clear, concise, and easy to understand. Uses terminology appropriately and is logically organized.

- **Standard:** Response was ½ to 1 page in length (2-3 fully developed paragraphs). Answered all the questions but did not provide an in-depth analysis, followed most of the assignment directions, proper grammar and no spelling errors. Language is comprehensible, but there a few passages that are difficult to understand. The organization is generally good.
- **Sub-standard:** Response was less than ½ page in length (1 paragraph). Did not answer all the required questions and/or statements or responses were superficial, vague, or unclear, did not follow the assignment directions, many grammar and spelling errors. Is adequately written, but may use some terms incorrectly; may need to be read two or more times to be understood.

Instructor/Student Contact Information

Throughout the course participants will be communicating with the instructor and their classmates on a regular basis using asynchronous discussion forums. A virtual office is utilized for class questions and students are provided with instructor contact information in the event they want to make email or phone contact. In addition, students are encouraged to email or phone the instructor at any time. Students will also receive feedback on the required assignments as they are submitted.

Discussion Forums

Participation is an important expectation of this course and all online courses. Online discussions promote reflection and analysis while allowing students to appreciate and evaluate positions that others express. While students may not be engaging with the same students throughout this course they will be expected to offer comments, questions, and replies to the discussion question whenever possible. The faculty role in the discussion forum is that of an observer and facilitator.

Coursework Hours

Based on the Carnegie Unit standard, a unit of graduate credit measures academic credit based on the number of hours the student is engaged in learning. This includes all time spent on the course: reading the textbook, watching videos, listening to audio lessons, researching topics, writing papers, creating projects, developing lesson plans, posting to discussion boards, etc. Coursework offered for FPU Continuing Education graduate credit adheres to 45 hours per semester unit for the 900-level courses. Therefore, a student will spend approximately 135 hours on a typical 3-unit course.

Services for Students with Disabilities

Students with disabilities are eligible for reasonable accommodations in their academic work in all classes. In order to receive assistance, the student with a disability must provide the Academic Support Center with documentation, which describes the specific disability. The documentation must be from a qualified professional in the area of the disability (i.e. psychologist, physician or educational diagnostician). Students with disabilities should contact the Academic Support Center to discuss academic and other needs as soon as they are diagnosed with a disability. Once documentation is on file, arrangements for reasonable accommodations can be made. For more information and for downloadable forms, please go to https://www.fresno.edu/students/academic-support/services-students-disabilities.

Plagiarism and Academic Honesty

All people participating in the educational process at Fresno Pacific University are expected to pursue honesty and integrity in all aspects of their academic work. Academic dishonesty, including

plagiarism, will be handled per the procedures set forth in the Fresno Pacific University Catalogue - https://www.fresno.edu/students/registrars-office/academic-catalogs

Technology Requirements

To successfully complete the course requirements, course participants will need Internet access, can send and receive email, know how to manage simple files in a word processing program, and have a basic understanding of the Internet. Please remember that the instructor is not able to offer technical support. If you need technical support, please contact your Internet Service Provider.

Moodle: This course will be delivered totally online. Moodle is a learning management system that provides students access to online resources, documents, graded assignments, quizzes, discussion forums, etc. Moodle is easy to learn and has a friendly user interface. To learn more about Moodle, go to https://docs.moodle.org/33/en/Student_FAQ. There are also some student tutorials on the Center for Online Learning website at Fresno Pacific University - https://col.fresno.edu/student.

Moodle Site Login and Passwords: Students will need to have internet access to log onto https://ce-connect.fresno.edu. The username and password numbers for Moodle access will be sent to you by the university using the email address you submitted at the time of registration. The instructor will then contact you with a welcome communication. If you need help with your username and password recovery, please contact the Continuing Education office at (800) 372-5505 or (559) 453-2000 during regular office hours - Mon-Fri 8:00 am to 5:00 pm. or email them at prof.dev@fresno.edu.

Getting Help with Moodle: If you need help with Moodle, please contact the Center for Online Learning (COL), by telephone or the website. Help by phone (559) 453-3460 is available Mon-Thurs 8:00 am to 8:00 pm and on Fridays from 8:00 am to 5:00 pm, or by filling out a "Request Services" form at https://col.fresno.edu/contact/request-services. Please identify that you are with the "School = Continuing Education".

Final Course Grade and Transcripts

When all work for the course has been completed, students will need to logon to the Continuing Education website (https://ce.fresno.edu/my-account) and "Request Final Grade". Once the instructor receives the requests and submits the grade online, students may log back in to view their Final Grade Report or order transcripts online. Please allow at least two weeks for the final grade to be posted. For more information, see the Continuing Education Policies and Procedures at https://ce.fresno.edu/ce-policies-and-procedures.

University Policies and Procedures

Students are responsible for becoming familiar with the information presented in the Academic Catalog and for knowing and observing all policies and procedures related to their participation in the university community. A summary of university policies may be found on the university website at https://www.fresno.edu/students/registrars-office/academic-catalogs.

Fresno Pacific University Student Learning Outcomes

Student Learning Outcomes Oral Communication: Students will *exhibit* clear, engaging, and confident oral communication – in both individual and group settings – and will critically *evaluate* content and delivery components.

Written Communication: Students will *demonstrate* proficient written communication by *articulating* a clear focus, *synthesizing* arguments, and utilizing standard formats in order to *inform* and *persuade* others.
Content Knowledge: Students will *demonstrate* comprehension of content-specific knowledge and the ability to apply it in theoretical, personal, professional, or societal contexts.
Reflection: Students will *reflect* on their personal and professional growth and *provide evidence* of how such reflection is utilized to manage personal and vocational improvement.
Critical Thinking: Students will *apply* critical thinking competencies by *generating* probing questions, *recognizing* underlying assumptions, *interpreting* and *evaluating* relevant information, and *applying* their understandings to new situations.
Moral Reasoning: Students will *identify* and *apply* moral reasoning and ethical decision-making skills, and *articulate* the norms and principles underlying a Christian world-view.
Service: Students will *demonstrate* service and reconciliation as a way of leadership.
Cultural and Global Perspective: Students will *identify* personal, cultural, and global perspectives and will employ these perspectives to *evaluate* complex systems.
Quantitative Reasoning: Students will accurately *compute* calculations and symbolic operations and *explain* their use in a field of study.
Information Literacy: Students will *identify* information needed in order to fully understand a topic or task, *explain* how that information is organized, *identify* the best sources of information for a given enquiry, *locate* and critically *evaluate* sources, and accurately and effectively *share* that information.