

CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS

**NEW COURSE PROPOSAL**

PROGRAM AREAS        MATH

**1. Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of \_\_\_ units); time distribution (Lecture \_\_\_ hours, laboratory \_\_\_ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

**MATH 320 MATHEMATICS AND FINE ARTS (3)**

Three hours of lecture in the lab per week

Prerequisites: A passing score on the Entry Level Mathematics examination, or Math 095 .

The course is specially designed for students interested in fine arts, with the emphasis on understanding geometric patterns and concepts by self-explorations. The course creates a vast reservoir of art-related examples and hands-on experiences, and will give an innovative mathematical background for future artistic endeavors of students.

GE- B3

**2. Mode of Instruction.**

	<b>Units</b>	<b>Hours per Unit</b>	<b>Benchmark Enrollment</b>
Lecture	<u>  3  </u>	<u>  1  </u>	<u> 24 </u>
Seminar	<u>      </u>	<u>      </u>	<u>      </u>
Laboratory	<u>      </u>	<u>      </u>	<u>      </u>
Activity	<u>      </u>	<u>      </u>	<u>      </u>

**3. Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

This course is an elective for Mathematics and Arts majors. It is recommended for Liberal Studies students intending to teach. Can be use as mathematics general education course by non science majors.

Through this course, students will be able to

- Recognize and appreciate the beauty of geometric nature of many artistic works
- Identify the mathematical background of patterns and compositions appearing in the arts.
- Classify and generate patterns using symmetry groups
- Design artistic creations following mathematical rules.
- Recognize and appreciate role of color, patterns and symmetry in many works of art
- Apply rules of harmony, 'golden ratio', proportion in their compositions
- Use modern software to create designs, analyze computer graphics.
- Use geometric constructions in 2-D and 3-D disigns
- Express mathematical concepts and techniques related to Fine Arts in oral and written form.

This course is not designed to satisfy the University Writing or Language requirements.

**4. Is this a General Education Course** **YES**

**If Yes, indicate GE category:**

<b>A (English Language, Communication, Critical Thinking)</b>	
<b>B (Mathematics &amp; Sciences)</b>	<b>B3</b>
<b>C (Fine Arts, Literature, Languages &amp; Cultures)</b>	

<b>D (Social Perspectives)</b>	
<b>E (Human Psychological and Physiological Perspectives)</b>	

**5. Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*

Geometric patterns and concepts  
 Geometric Constructions  
 Geometry of small patterns and Art-related examples  
 Strip Paterns and Art-related examples  
 Plane paterns and Art-related examples  
 Tilings  
 The Art of tessellalations  
 Three dimensional designs and group theory

**6. References.** *[Provide 3 - 5 references on which this course is based and/or support it.]*

*Mathematics and Fine Arts*, I. Grzegorzcyk, Kendall/Hunt Publishing (2000).  
*M.C. Escher, Visions of Symmetry*, D. Schattsschneider, Freedman (1990).  
*Greate Architecture of the World*, J.J. Norwich, Smithmark, (1996).  
*Islamic Patterns*, K. Critchlow, Thames and Hudson, (1992).  
*Concepts and Composition*, F. Henning, North Light Publishers (1983).  
*Annotated Art*, R. Cumming, Doring Kindersley, (1995).

**7. List Faculty Qualified to Teach This Course.**

Ivona Grzegorzcyk

**8. Frequency.**

a. Projected semesters to be offered: Fall  Spring  Summer

**9. New Resources Required.**

a. Computer (data processing), audio visual, broadcasting needs, other equipment

Existing Mac Labs

b. Library needs

Existing resources

c. Facility/space needs

None

**10. Consultation.**

Attach consultation sheet from all program areas, Library, and others (if necessary)

**11.** If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

\_\_\_\_\_ Ivona Grzegorzcyk \_\_\_\_\_ 1/8/03 \_\_\_\_\_  
 Proposer of Course Date