

NEW COURSE PROPOSAL**Courses must be submitted by November 9, 2007, to make the next catalog production**DATE (*Change if modified*)

12.5.07 REV 12.12.07

PROGRAM AREA(S)

GEOLOGY

1. Catalog Description of the Course. *[Follow accepted catalog format.]***Prefix(es)** (Add additional prefixes if cross-listed) **GEOL Course No. 322****Title: SEDIMENTOLOGY/STRATIGRAPHY/GROUNDWATER HYDROLOGY Units: 4**☒ Prerequisites Geol. 121☐ Corequisites☐ Consent of Instructor Required for Enrollment

Description (Do not use any symbols): **Focuses on the basics of groundwater and the sedimentary materials in which it exists and moves. It begins with sediments and sedimentary facies, continues with determination of aquifer morphology from well data, then embarks on physical hydrogeology. Laboratory exercises and field trips will provide hands-on experience in sedimentary section characterization and water well methods.**

Grading Scheme:☒ A-F Grades☐ Credit/No Credit☐ Optional (Student Choice)**Repeatability:**☐ Repeatable for a maximum of units

Total Completions Allowed

☐ Multiple Enrollment in Same Semester**Lab Fee Required:** ☒**Mode of Instruction/Components** (*Hours per Unit are defaulted*).

	Units	Hours per Unit	Benchmark Enrollment	Graded Component	CS & HEGIS # (Filled in by the Dean)
Lecture	3	1	24	☒	
Seminar		1		☐	
Laboratory	1	3	24	☒	
Activity		2		☐	
Field Studies				☐	
Indep Study				☐	
Other Blank				☐	

The following two lines will be filled out internally based on the Mode of Instruction data directly above.

3 hours lecture per week (*Use 2nd line only if necessary*)

3 hours laboratory per week

Course Attributes:

☐ **General Education Categories:** All courses with GE categories notations (including deletions) must be processed at the GE website: <http://summit.csuci.edu/geapproval>. Upon completion, the GE Committee will forward your documents to the Curriculum Committee for further processing.

A (English Language, Communication, Critical Thinking)A-1 Oral Communication ☐A-2 English Writing ☐A-3 Critical Thinking ☐**B (Mathematics, Sciences & Technology)**B-1 Physical Sciences ☐B-2 Life Sciences – Biology ☐B-3 Mathematics – Mathematics and Applications ☐B-4 Computers and Information Technology ☐**C (Fine Arts, Literature, Languages & Cultures)**C-1 Art ☐C-2 Literature Courses ☐C-3a Language ☐C-3b Multicultural ☐

D (Social Perspectives)	☐
E (Human Psychological and Physiological Perspectives)	☐
UDIGE/INTD Interdisciplinary	☐
Meets University Writing Requirement	☐
Meets University Language Requirement	☐

☐ American Institutions, Title V Section 40404: ☐ Government ☐ US Constitution ☐ US History
Refer to website, Exec Order 405, for more information: <http://senate.csuci.edu/comm/curriculum/resources.htm>
☐ Service Learning Course

3. Justification and Requirements for the Course. (Make a brief statement to justify the need for the course)

A. Justification: CSUCI does not offer courses in sedimentology and stratigraphy. This course would fill the need.

B. Degree Requirement: ☐ Requirement for the Major/Minor
☒ Elective for the Major/Minor

Note: Submit Program Modification if this course changes your program.

4. Learning Objectives. (*Bullets, will occur upon carriage return*)

Upon completion of the course, the student will be able to:

- Classify a wide variety of sediments/sedimentary rocks and describe their potential as aquifers or aquitards.
- Describe the various depositional environments and the sedimentary facies that they produce.
- Describe the potential of the various sedimentary facies as aquifers and aquitards.
- Project how sedimentary diagenesis could improve or degrade the potential of a sediment or rock body as an aquifer or aquitard.
- Correlate sediment/rock bodies between outcrops, trenches, well logs, and seismic records to arrive at a three-dimensional map of a groundwater basin.
- Describe the occurrence and movement of groundwater.
- Project how groundwater chemistry and quality will change downflow as it passes through aquifers with a variety of mineral compositions.
- Evaluate aquifer capacity and yield from well tests.
- Project the behavior of contaminants in the groundwater system.

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

- I. Sedimentology: Origin and transport of sedimentary materials
- II. Sedimentology: Physical properties of sedimentary rocks
- III. Sedimentology: Sedimentary rock types
- IV. Sedimentology: Depositional environments and facies
- V. Sedimentology: Sedimentary diagenesis
- VI. Stratigraphy: Lithostratigraphy
- VII. Stratigraphy: Sequence stratigraphy
- VIII. Stratigraphy: Biostratigraphy
- IX. Groundwater Hydrology: Physical properties and principles
- X. Groundwater Hydrology: Chemical properties and principles
- XI. Groundwater Hydrology: Flow nets
- XII. Groundwater Hydrology: Groundwater and the hydrologic cycle
- XIII. Groundwater Hydrology: Chemical evolution of groundwater
- XIV. Groundwater Hydrology: Groundwater resource evaluation
- XV. Groundwater Hydrology: Groundwater contamination

Does this course overlap a course offered in your academic program? YES ☐ NO ☒

If YES, what course(s) and provide a justification of the overlap?

Does this course overlap a course offered in another academic area? YES ☐ NO ☒

If YES, what course(s) and provide a justification of the overlap?

Signature of Academic Chair(s) of the other academic area(s) is required on the signature sheet below.

6. Cross-listed Courses *(Please fill out separate description in item 1 above, for each PREFIX)*

A. List Cross-listed Courses (Signature of Academic Chair(s) of the other academic area(s) is required).
Prefix for cross-listed discipline(s):

B. Department responsible for staffing: Biology, Geology and Nursing

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

- Boggs, S. 2006 Principles of Sedimentology and Stratigraphy (4th edition): Pearson/Prentice Hall, Upper Saddle River, NJ.
- Doyle, P., M.R. Bennett, and A.N. Baxter 2001 The Key to Earth History: An Introduction to Stratigraphy: John Wiley & Sons, Inc., New York, NY.
- Fetter, C.W. 2000 Applied Hydrogeology (4th edition): Pearson/Prentice Hall, Inc., Upper Saddle River, NJ.
- Prothero, D.R. and F. Schwab 2004 Sedimentary Geology (2nd edition): W.H. Freeman and Co., New York, NY.

8. List Faculty Qualified to Teach This Course.

- Geology faculty

9. Effective Date

A. First semester offered: Spring 2009

10. New Resources Required. YES ☐ NO ☒

If YES, list the resources needed and obtain signatures from the appropriate programs/units on the sheet below.

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

B. Library needs

C. Facility/space needs

11. Will this new course alter any degree, credential, certificate, or minor in your program? YES ☐ NO ☒

If, YES attach a program modification form for all programs affected.

Catalog deadline for New Minors and Programs (including modifications): October 15, 2007, preceding year.

Catalog deadline for Course Proposals and Modifications: November 9, 2007, of preceding year.

Last day to submit any work to be considered for the academic year: April 15th.

Christopher Wheeler/Nancy Mozingo

Proposer of Course

11/5/2007

Date

Approval Sheet
Program/Course:

Program Chair(s)

Date

Program Chair(s)

Date

General Education Chair(s)

Date

Curriculum Committee Chair(s)

Date

Dean of Faculty

Date