CALIFORNIA STATE UNIVERSITY CHANNEL ISLANDS COURSE MODIFICATION PROPOSAL Courses must be submitted by October 15, 2012, and finalized by the end of the fall semester to make the next catalog (2013-14) production DATE (CHANGE DATE EACH TIME REVISED): FALL 2013; REV 10.31.12; REV 12.11.12 PROGRAM AREA(S): BIOLOGY Directions: All of sections of this form must be completed for course modifications. Use YELLOWED areas to enter data. All documents are stand alone sources of course information.

1. Indicate Changes and Justification for Each. [Mark all change areas that apply and follow with justification. Be as brief as possible but, use as much space as necessary.]

r		
	Χ	Course title
		Prefix/suffix
		Course number
		Units
		Staffing formula and enrollment limits
		Prerequisites/Co-requisites
	Х	Catalog description
		Mode of Instruction

Х **Course Content** Χ **Course Learning Outcomes** References GE Other Reactivate Course

Justification:

TITLE –Title has been revised to more correctly align with a full content plant physiology course (course change from "Molecular Plant Physiology" to "Plant Physiology"; - a title of solely molecular content to a more inclusive and common title inclusive of molecular, cellular, organism and whole plant function.

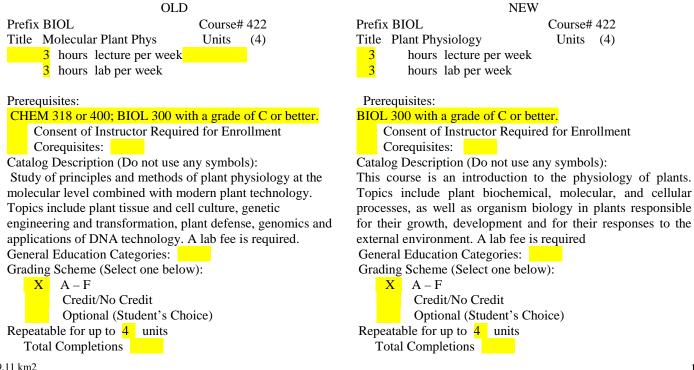
CONTENT - course content has been expanded to better reflect a full complement of plant physiological areas inclusive of molecular, cellular, organismal to whole plant levels of organization.

CATALOG DESCRIPTION Course description revised to reflect course revision

COURSE LEARNING OUTCOMES – Revised to include organismal and whole plant physiology

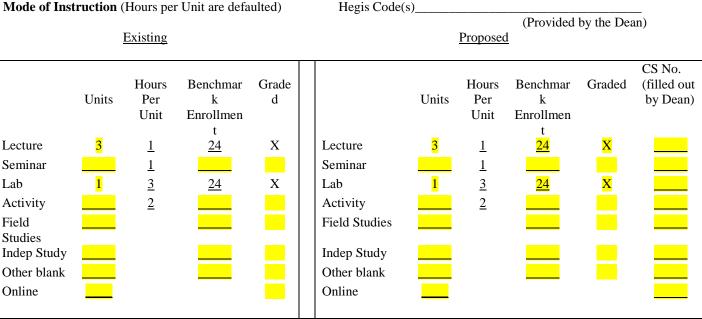
2. Course Information.

[Follow accepted catalog format.] (Add additional prefixes i f cross-listed)



Multiple Enrollment in Same Semester Y/N Course Level: X Undergraduate Post-Baccalaureate Graduate

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3. Mode of Instruction (Hours per Unit are defaulted)

4. Course Attributes:

General Education Categories: All courses with GE category notations (including deletions) must be submitted to 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 (Approval from the Center for Community Engagement must be received before you can request this course attribute).

Online Course (Answer YES if the course is ALWAYS delivered online).

5. Justification and Requirements for the Course. [Make a brief statement to justify the need for the course]

OLD

Basic Science required of most biology majors



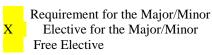
Requirement for the Major/Minor Elective for the Major/Minor

Free Elective

Submit Program Modification if this course changes your program.

NEW

Course revised to reflect a broader scope of the area



6. Student Learning Outcomes. (List in numerical order. Please refer to the Curriculum Committee's "Learning Outcomes" guideline for measurable outcomes that reflect elements of Bloom's Taxonomy:

http://senate.csuci.edu/comm/curriculum/resources.htm. The committee recommends 4 to 8 student learning outcomes, unless governed by an external agency (e.g., Nursing).

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

- 1. Explain the process of photosynthesis at the molecular level
- 2. Describe the structure and function of plant cells
- 3. Explain growth, development and differentiation in plants
- 4. Discuss applications of biotechnology to plant research
- 5. Generate a hypothesis from a set of observations and then design experiments to test the hypothesis

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

- 1. Demonstrate an understanding of how water moves in plants at both the molecular and organismal levels.
- 2. Demonstrate an understanding of the biochemical processes of photosynthesis, glycolysis, citric acid cycle, and electron transport.
- 3. Use simple laboratory skills in scientific measurements.
- 4. Write a scientific research paper.

7. Course Content in Outline Form. (Be as brief as possible, but use as much space as necessary) OLD NEW

Gene Expression and Signal Transduction Cells, Tissues and Plant Organs Plant and Cell Architecture Gene Expression and Signal Transduction Water and Plant Cells Photosynthesis: light reactions Mineral Nutrition CO2 assimilation/photorespiration Solute Transport C4 photosynthesis Photosynthesis CAM photosynthesis Translocation in the Phloem Phloem structure and function Respiration and Lipid Metabolism Water and plant cells Assimilation of Mineral Nutrients The structure and function of xylem Plant Defenses: Surface Protection and Secondary Evolution of plant water transport **Metabolites** Growth, Development, and Differentiation Gene Expression and Signal Transduction Mineral nutrition Cell Walls: Structure, Biogenesis, and Expansion Secondary metabolism Growth and development Growth, Development, and Differentiation Phytochrome Phytochrome/blue light response Blue-Light Responses: Stomatal Movements and Hormones Physiology of flowering Morphogenesis Plant Defenses Genetic engineering and transformation, genomics and applications of DNA technology Research lecture Genetic engineering and transformation, genomics and applications of DNA technology

Does this course content overlap with a course offered in your academic program? Yes If YES, what course(s) and provide a justification of the overlap.

No <mark>X</mark>

No X

Does this course content overlap a course offered in another academic area? Yes

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

Overlapping courses require Chairs' signatures.

- 8. Cross-listed Courses (Please note each prefix in item No. 1) not applicable
 - A. List cross-listed courses (Signature of Academic Chair(s) of the other academic area(s) is required).
 - B. List each cross-listed prefix for the course:
 - C. Program responsible for staffing:
- **9. References**. [Provide 3-5 references]

OLD

Buchanan, B., Gruissem, W., and Jones, R.L. Biochemistry and Molecular Biology of Plants. (2002). John Wiley and Sons. Taiz, L. Plant Physiology, 3rd Edition. (2002). Sinauer.

Salisbury, F. Plant Physiology, 4th edition. (1992). Brooks/Cole Publishing.

<mark>NEW</mark>

Lincoln Taiz and Eduardo Zeiger. Plant Physiology, 5th Edition. (2012). Sinauer Journal articles

- 10. Tenure Track Faculty qualified to teach this course. Dawn Neuman and other Biology faculty
- 11. Requested Effective Date or First Semester offered: Fall 2013
- **12. New Resource Requested**: Yes No X If YES, list the resources needed.
 - A. Computer Needs (data processing, audio visual, broadcasting, other equipment, etc.)
 - B. Library Needs (streaming media, video hosting, databases, exhibit space, etc.)
 - C. Facility/Space/Transportation Needs:
 - D. Lab Fee Requested: Yes X No Refer to the Dean's Office for additional processing
 - E. Other.
- 13. Will this course modification alter any degree, credential, certificate, or minor in your program? Yes No X If, YES attach a program update or program modification form for all programs affected. Priority deadline for New Minors and Programs: October 1, 2012 of preceding year. Priority deadline for Course Proposals and Modifications: October 15, 2012. Last day to submit forms to be considered during the current academic year: April 15th.

 Dawn Neuman
 October 15, 2012

 Proposer(s) of Course Modification
 Date

Type in name. Signatures will be collected after Curriculum approval.

Approval Sheet

Course: **BIOL 422**

If your course has a General Education Component or involves Center affiliation, the Center will also sign off during the approval process.

Multiple Chair fields are available for cross-listed courses.

The CI program review process includes a report from the respective department/program on its progress toward accessibility requirement compliance. By signing below, I acknowledge the importance of incorporating accessibility in course design.

Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
Program Chair		
	Signature	Date
General Education Chair		
	Signature	Date
Center for Intl Affairs Director		
	Signature	Date
Center for Integrative Studies Director		
Director	Signature	Date
Center for Multicultural Engagement Director		
	Signature	Date
Center for Civic Engagement and Service Learning Director		
Bourning Director	Signature	Date
Curriculum Chair		
	Signature	Date
AVP		
	Signature	Date