Resolution #10
2002-2003
FACULTY SENATE

SUNY BROCKPORT
Faculty Senate
State University of New York
College at Brockport
151 New Campus Drive
Brockport, NY 14420-2925
(585) 395-2586 (Fax) 395-2246

TO: Dr. Paul Yu, College President

FROM: The Faculty Senate Meeting on March 3, 2003

RE: I. Formal Resolution (Act of Determination)
    II. Recommendation (Urging the Fitness of)
    III. Other, For Your Information (Notice, Request, Report, etc.)

SUBJ: Minor Revision to the BIO 300/400 Level Major Curriculum

Signed: [Signature] Date Sent: 3/10/03
(Dr. Kenneth O'Brien, 2002-2004 Faculty Senate President)

TO: The Faculty Senate

FROM: Dr. Paul Yu, College President

RE: I. Decision and Action Taken on Formal Resolution (circle)
    a. Accepted. Effective Date: _/__/_
    b. Deferred for discussion with the Faculty Senate on _/__/_
    c. Unacceptable for the reasons contained in the attached explanation

II, III. Response to Recommendation or Other/FYI
    a. Received and acknowledged
    b. Comment:

______________________________

DISTRIBUTION TO: President's Staff and Deans

Distribution Date:
(Signed: Dr. Paul Yu, President, SUNY College at Brockport)

Date: 3/26/03

Faculty Senate, 03/07/03
C:\My Documents\Resolution Cover Sheets and Numbers\2002-2003-10.res.doc
January 30, 2003

TO: Dena Levy, Chair  
Faculty Senate Undergraduate Curriculum Committee

FROM: Michael A. Maggiotto, Dean

RE: Course Changes in Biological Sciences

I have reviewed the proposed changes in BIO 301 and BIO 302 and creation of a new laboratory course, BIO 306. I support the proposals and urge the Senate’s speedy action to approve them.

MM:kk
Enclosures
To: Dr. Ken O’Brien, President, Faculty Senate
From: Dr. Stephen Chan, Chair Department of Biological Sciences
Date: January 28, 2003
Re: Changes in Biology major

In light of the separation of environmental sciences/biology group from our department, we would like to redistribute required course for our biology major. No change in credit hours will result from the following changes:

1.) BIO301 (Cell Biology) will now be a required second year core course; but in order to decrease duplication, BIO 301 (Cell Biology) and BIO302 (Genetics) labs will be incorporated into a single required 3 credit lab/lecture course BIO 306 (Cell Biology and Genetics laboratory). This reduces then the credits in BIO 301 and 302 to 3 credit hours each.

2.) BIO 303 Ecology will now be an elective rather than a required core course for biology majors

3.) BIO 411 (Evolution) will no longer be an upper level core requirement since molecular evolutionary concepts will now be incorporated into genetics and most other courses. The three hours from this course will be applied to the second year core and the upper level elective distribution.

**PROPOSED BIOLOGY CURRICULUM CHANGES**

<table>
<thead>
<tr>
<th>Current Biology major</th>
<th>Proposed Biology major</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First year core</strong></td>
<td><strong>First year core</strong></td>
</tr>
<tr>
<td>Biology I, II (BIO 201, 202)- 8 hours</td>
<td>Biology I, II BIO 201, 202- 8 hours</td>
</tr>
<tr>
<td><strong>Second year Core</strong></td>
<td><strong>Second year core</strong></td>
</tr>
<tr>
<td>Genetics, Ecology (Bio 302,303) –8 hours</td>
<td>Cell Biology 3hrs, Genetics 3hrs , Cell &amp;</td>
</tr>
<tr>
<td></td>
<td>Genetics Techniques 3hrs. (BIO 301,302,,306</td>
</tr>
<tr>
<td>Second year electives</td>
<td>Second year electives</td>
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<td>-----------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>BIO 301, BIO 321, 322: BIO 323; BIO 305-4-8 hours</td>
<td>BIO 303 BIO 321, 322: BIO 323, -4-8 hours</td>
</tr>
<tr>
<td>Cell Biology; Anatomy and physiology I,II; Microbiology; Comparative physiology</td>
<td>Ecology, Anatomy and physiology I,II; Microbiology;</td>
</tr>
<tr>
<td><strong>Upper level core</strong></td>
<td><strong>Upper level core</strong></td>
</tr>
<tr>
<td>BIO 411 (Evolution), BIO 498 (Seminar) - 4 hours</td>
<td>BIO 498 (Seminar) – 1 hours</td>
</tr>
<tr>
<td><strong>Upper level electives</strong></td>
<td><strong>Upper level electives</strong></td>
</tr>
<tr>
<td>Any 400 level biology course - 10-14 credits</td>
<td>Any 400 level biology course - 13-16 credits</td>
</tr>
<tr>
<td>TOTAL BIOLOGY HOURS 38</td>
<td>TOTAL BIOLOGY HOURS 38</td>
</tr>
</tbody>
</table>

**CHEMISTRY REQUIREMENTS**

<table>
<thead>
<tr>
<th>Current chemistry requirement</th>
<th>Proposed chemistry requirement</th>
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</thead>
<tbody>
<tr>
<td>CHM 205.206 College chemistry I,II-8 hrs</td>
<td>CHM 205.206 College chemistry I,II-8hrs</td>
</tr>
<tr>
<td>CHM 305 Organic chemistry I-4 hrs</td>
<td>CHM 305 Organic chemistry I-4 hrs</td>
</tr>
<tr>
<td>TOTAL CHEMISTRY HOURS 12</td>
<td>TOTAL CHEMISTRY HOURS 12</td>
</tr>
</tbody>
</table>

**TOTAL HOURS FOR MAJOR PLUS CHEMISTRY COREQUISITES**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>50 hours</td>
<td>50 hours</td>
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</table>
College Course Registration Form

This form is used to register all courses. It must be signed by the department chair and the school dean who will send it forward to the Registrar's Office. Registration of General Education courses requires an additional Supplemental Course Registration Form and the appropriate Student Learning Outcomes Checklist. Approval by the Faculty Senate's General Education Committee is necessary for all General Education courses.

Data entry fields are shaded. Some fields have limits on numbers and spaces that can be entered. Some areas have drop-down menus with options that can be selected by clicking your choice. Save the blank form before using it and then save each course form with an individual file name. Go back to the saved blank for each new form but save with a different name after filling in data.

Action concerns a new course: Discipline BIO Number 306
Action concerns an existing course: Discipline Number

Course Submitted by: Dr. Rey Sia
Department: Biological Sciences

Chairperson’s Approval: ___________________________ Date: Jan 28, 2003

Dean’s Approval: ___________________________ Date:

1. Action requested:
   - ☒ Registration of new course
   - [ ] Revision of content for existing course
   - [ ] Registration of general course listing under which related titles can be taught (umbrella courses)
   - [ ] Registration of topics course for specific semester (if checked, complete item 2 below)
   - [ ] Change of course title – Previous Title:
   - [ ] Inactivation of existing course registration (course will not be taught in near future)
   - [ ] Other – Describe:

2. Complete for registration of topics courses or umbrella courses:
   a. General course registration: Discipline: Number:
   b. General registration title:
   c. Specific course title for semester offered (topics course title):
   d. Topics course registration is for: FALL SEMESTER Year:

3. a. ☒ Undergraduate listing: Discipline: Number:
   b. [ ] Graduate listing: Discipline: Number:

4. a. Official course title: Cell and Genetics Laboratory
   b. Course start date: FALL SEMESTER YEAR: 2003

5. Abbreviated course title (restricted to 16 spaces) Cell & Genet Lab

6. a. Semester hours of credit assigned to course (invariable): 3
   b. Can this course have variable credit ☒ No ☐ Yes - Credit range to semester hours
   c. Is this course is repeatable for multiple credit? ☒ No ☐ Yes - Credit Maximum =

7. Type of Course: LIBERAL ARTS

3. General Education Information: (Complete only for General Education courses)
   a. General Education Knowledge Area (choose one if applicable): NONE
b. Additional student learning outcomes: (check all codes that are currently approved)
   □ Contemporary Issues (I)      □ Upper Level Writing (U)
   □ Both Contemporary Issues and Upper Level Writing (I)
   □ Scholarship on Women (W)    □ Diversity (D)
   □ Science & Technology (E)    □ Other World Civilizations (Non-Western) (O)

9. If cross-listed in another discipline(s), give discipline(s)/number(s):
   If there are pre-requisites that are enforced, give discipline(s)/number(s): BIO 201, 202; CHM 205, 206
   If there are co-requisites, give discipline(s)/number(s): BIO 301 or BIO 302

10. a. Approximate total number of seats/semester expected: 48
    b. How many sections do you expect to offer per semester: 2

11. Sections of this course are (check one): taught by one instructor ☑ taught by a team □

12. Planned frequency of offering: EVERY SEMESTER

13. Grading (check any that apply):
   ☑ Letter grade □ Pass/Fail (S/U) ONLY □ Approved for IP grade
   □ Course requires a minimum grade of for General Education or the major

14. If this course requires any special scheduling arrangements with regard to time or room/space, please comment on this in the space provided:

15. If this course is required for any degrees/programs, please list them below:
   Required for Biology Major

16. Write a brief course description for the College Catalogs. Reflect content as accurately as possible using 65 words or less (about 500 characters. Use action verbs and omit "This course covers..." and similar phrases.
   BIO 306 Cell and Genetics Laboratory (A). Corequisites: BIO 301, 302. Course can be taken concurrently with either of the above. Experiments for the Genetic section focus on topics such as DNA and protein analysis, Mendelian and non-Mendelian segregation principles, bacterial genetics, mutagenesis, gene regulation, and population genetics. The Cell Biology laboratory techniques include microscopy, enzyme assays, organelle isolation and electrophoresis. Instructions and theoretical basis for experiments will be given prior to each lab. 3 Cr. Every Fall and Spring

17. For all courses, please attach the following information:
   (a) a list of major course objectives
   (b) a topical outline of course
   (c) a list of methods used to evaluate student performance
   (d) a list of instructional materials used – give bibliographic citations of texts, critical readings, films, e
(e) a current course syllabus, if possible
(f) a brief statement detailing the additional work required of graduate students in a “swing course.”

For General Education courses only, attach also:
(g) Supplemental General Education Course Registration Form
(h) Student Learning Outcomes Checklist (for specific codes requested).
1. Objective: This laboratory course will provide experiments to illustrate and reinforce the principles covered in both the Genetic and Cell Biology lecture courses. Experiments that will be conducted in the Genetic section of this lab course focus on topics such as DNA and protein analysis, Mendelian and non-Mendelian segregation principles, bacterial genetics, mutagenesis, gene regulation, and population genetics. The Cell Biology laboratory techniques include microscopy, enzyme assays, organelle isolation, and electrophoresis.

2. Outline:
   1. Spectrophotometry: DNA and Protein Concentration
   2. Gene segregation, Chromosome Spread, and Karyogamy
   3. DNA Isolation and Characterization and Yeast Transformation
   4. Bacterial Transformation and Conjugation
   5. Chemical and UV Mutagenesis
   6. lac Operon Induction
   7. DNA Fingerprinting and Population Genetics
   8. Light microscopy – brightfield, darkfield, and DIC
   9. Properties of membranes
   10. Immunofluorescent localization of cytoskeletal elements
   11. Catecholase and catalase assays
   12. Isolation of mitochondria and assay of succinate dehydrogenase
   13. Isolation and assay of chloroplasts
   14. Protein electrophoresis & lactic dehydrogenase activity gel

3. Methods of Assessment:
   1. Lab reports
   2. Problem sets
   3. Midterm and Final Exam

4. Materials:
   1. Quicktime animations
   2. Computer software
   3. Experimental Protocol Handouts
   4. Web-based lab manual
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Action concerns a new course: Discipline Number
Action concerns an existing course: Discipline BIO Number 301

Course Submitted by: Dr. Craig Lending
Department: Biological Sciences

Chairperson's Approval: [Signature] Date: Jan 28, 2003
Dean's Approval: [Signature] Date:

1. Action requested:
   - [ ] Registration of new course
   - [x] Revision of content for existing course
   - [ ] Registration of general course listing under which related titles can be taught (umbrella courses)
   - [ ] Registration of topics course for specific semester (if checked, complete item 2 below)
   - [ ] Change of course title – Previous Title:
   - [x] Inactivation of existing course registration (course will not be taught in near future)
   - [ ] Other – Describe:

2. Complete for registration of topics courses or umbrella courses:
   a. General course registration: Discipline: Number:
   b. General registration title:
   c. Specific course title for semester offered (topics course title):
   d. Topics course registration is for: FALL SEMESTER Year:

3. a. [x] Undergraduate listing: Discipline: BIO Number: 301
   b. [ ] Graduate listing: Discipline: Number:

4. a. Official course title: Genetics
   b. Course start date: FALL SEMESTER YEAR: 2003

5. Abbreviated course title (restricted to 16 spaces) Cell Biology

6. a. Semester hours of credit assigned to course (invariable): 3
   b. Can this course have variable credit [x] No [ ] Yes - Credit range to semester hours
   c. Is this course is repeatable for multiple credit? [x] No [ ] Yes - Credit Maximum =

7. Type of Course: LIBERAL ARTS

8. General Education Information: (Complete only for General Education courses)
   a. General Education Knowledge Area (choose one if applicable): NONE
b. Additional student learning outcomes: (check all codes that are currently approved)
   □ Contemporary Issues (I)    □ Upper Level Writing (U)
   □ Both Contemporary Issues and Upper Level Writing (I)
   □ Scholarship on Women (W)    □ Diversity (D)
   □ Science & Technology (F)    □ Other World Civilizations (Non-Western) (O)

9. If cross-listed in another discipline(s), give discipline(s)/number(s):
   If there are pre-requisites that are enforced, give discipline(s)/number(s): BIO 201, 202; CHM 205 or 206
   If there are co-requisites, give discipline(s)/number(s):

10. a. Approximate total number of seats/semester expected: 72
    b. How many sections do you expect to offer per semester: 3

11. Sections of this course are (check one): taught by one instructor    x    taught by a team    □

12. Planned frequency of offering: EVERY FALL

13. Grading (check any that apply):
    x Letter grade    □ Pass/Fail (S/U) ONLY    □ Approved for IP grade
    □ Course requires a minimum grade of   for General Education or the major

14. If this course requires any special scheduling arrangements with regard to time or room/space, please
    comment on this in the space provided:

15. If this course is required for any degrees/programs, please list them below:
    Required for Biology Major

16. Write a brief course description for the College Catalogs. Reflect content as accurately as possible using
    65 words or less (about 500 characters. Use action verbs and omit “This course covers...” and similar
    phrases.
    BIO 301 Cell Biology. Prerequisites: BIO 201 and 202; CHM 205, 206Examines structure/function
    relationships at the cellular level. Covers macromolecular structure and functions, membranes, transport
    mechanisms, metabolism, the cell cycle, cancer, immunity and several other specialized topics. 3 Cr. Fall

17. For all courses, please attach the following information:
    (a) a list of major course objectives
    (b) a topical outline of course
    (c) a list of methods used to evaluate student performance
    (d) a list of instructional materials used – give bibliographic citations of texts, critical readings, films, etc
    (e) a current course syllabus, if possible
    (f) a brief statement detailing the additional work required of graduate students in a “swing course.”

For General Education courses only, attach also:
1. Objective: In his lecture and discussion format course, students are introduced to the structure/function relationships within prokaryotic and eukaryotic cells. Basic chemical components, assembly and cellular functions are described. The vocabulary, methodology and techniques of cell biology are discussed. Students will gain an in-depth knowledge of the many cellular processes that contribute to cellular organization and maintenance.

2. Outline of Course.
   a. Introduction, Structure/Function Relationships
   b. Cellular Chemistry
   c. Proteins
   d. Enzymes
   e. Membranes
   f. Membrane Proteins
   g. Membrane Transport
   h. Membrane-bound organelles & Evolution Protein Trafficking in Cells
   i. Vesicular Transport and Endocytosis
   j. Cytoskeleton — Microfils. and Microtubules
   k. Cytoskeleton — Actin and Muscle Glycolysis
   l. Glycolysis and Mitochondria — TCA Cycle
   m. Mitochondria — e transport & ox. phos
   n. Chloroplasts and Photosynthesis Calvin Cycle, C6, CAM Plants
   o. DNA, RNA, Nucleus
   p. Cell Cycle Control, Cell Death
   q. Cancer
   r. Signal Transduction – Nerve Cells
   s. Signal Transduction, Messengers and Receptors
   t. Immunity, Disease
   u. Human Genome Project, Proteomics

3. Methods of Assessment:
   a. Quizzes
   b. Hour Examinations
   c. Final Examination

4. Textbooks and Selected Reprints
   b. Reprints from Scientific American and various other scientific journals
   c. Selected Slides
   d. Web Sites
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<tr>
<th>Action concerns a new course</th>
<th>Discipline</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action concerns an existing course</td>
<td>Discipline BIO</td>
<td>Number 302</td>
</tr>
</tbody>
</table>

Course Submitted by: Dr. Rey Sia
Department: Biological Sciences

Chairperson's Approval: ........................... Date: Jan 28, 2003
Dean's Approval: ................................. Date: 

1. Action requested:
   - ☑ Registration of new course
   - ☐ Revision of content for existing course
   - ☐ Registration of general course listing under which related titles can be taught (umbrella courses)
   - ☐ Registration of topics course for specific semester (if checked, complete item 2 below)
   - ☐ Change of course title – Previous Title:
   - ☐ Inactivation of existing course registration (course will not be taught in near future)
   - ☐ Other – Describe:

2. Complete for registration of topics courses or umbrella courses:
   a. General course registration: Discipline: Number:
   b. General registration title:
   c. Specific course title for semester offered (topics course title):
   d. Topics course registration is for: FALL SEMESTER Year:

3. a. ☑ Undergraduate listing: Discipline: Number:
   b. ☐ Graduate listing: Discipline: Number:

4. a. Official course title: Genetics
   b. Course start date: SPRING SEMESTER YEAR: 2004

5. Abbreviated course title (restricted to 16 spaces) Genetics

6. a. Semester hours of credit assigned to course (invariable): 3
   b. Can this course have variable credit ☑ No ☐ Yes - Credit range to semester hours
   c. Is this course is repeatable for multiple credit? ☑ No ☐ Yes - Credit Maximum =

7. Type of Course: LIBERAL ARTS

8. General Education Information: (Complete only for General Education courses)
   a. General Education Knowledge Area (choose one if applicable): NONE
b. Additional student learning outcomes: (check all codes that are currently approved)
   □ Contemporary Issues (I) □ Upper Level Writing (U)
   □ Both Contemporary Issues and Upper Level Writing (J)
   □ Scholarship on Women (W) □ Diversity (D)
   □ Science & Technology (E) □ Other World Civilizations (Non-Western) (O)

9. If cross-listed in another discipline(s), give discipline(s)/number(s):
   If there are pre-requisites that are enforced, give discipline(s)/number(s): BIO 201, 202; CHM 205 or 206
   If there are co-requisites, give discipline(s)/number(s):

10. a. Approximate total number of seats/semester expected: 72
    b. How many sections do you expect to offer per semester: 3

11. Sections of this course are (check one): taught by one instructor ☒ taught by a team □

12. Planned frequency of offering: EVERY SPRING

13. Grading (check any that apply):
    ☒ Letter grade □ Pass/Fail (S/U) ONLY □ Approved for IP grade
    □ Course requires a minimum grade of for General Education or the major

14. If this course requires any special scheduling arrangements with regard to time or room/space, please comment on this in the space provided:

15. If this course is required for any degrees/programs, please list them below:
    Required for Biology Major

16. Write a brief course description for the College Catalogs. Reflect content as accurately as possible using 65 words or less (about 500 characters. Use action verbs and omit “This course covers...” and similar phrases.
    BIO 302 Genetics. Prerequisites: BIO 201, 202; CHM 205, 206. Covers the gene as the basis of variation and principles of heredity. Includes Mendelian genetics as well as molecular aspects including replication, transcription, and translation. Covers topics in genetic regulation, conjugation, mutation and repair, as well as population genetics. 3 Cr. Spring

17. For all courses, please attach the following information:
   (a) a list of major course objectives
   (b) a topical outline of course
   (c) a list of methods used to evaluate student performance
   (d) a list of instructional materials used – give bibliographic citations of texts, critical readings, films, e
   (e) a current course syllabus, if possible
   (f) a brief statement detailing the additional work required of graduate students in a “swing course.”
For General Education courses only, attach also:

(g) Supplemental General Education Course Registration Form
(h) Student Learning Outcomes Checklist (for specific codes requested).
1. Objectives: The course focuses on the gene as the basis of variation and principles of heredity. The principles of Mendelian genetics as well as the molecular aspects of replication, transcription, and translation will be discussed. Other topics to be covered include gene regulation, conjugation, mutation and repair, as well as population genetics. Students will be exposed to the methodology, terminology, and implications of current genetic approaches.

2. Outline:
   1. Nucleic acid, chromosomal and genome structure
   2. Gene function
   3. Segregation and independent assortment
   4. Recombination in bacteria and viruses
   5. Genetic linkage and mapping
   6. Recombinant DNA techniques and genomics
   7. Gene and Chromosomal mutations
   8. Mutational Dissection
   9. Gene regulation
   10. Population genetics

3. Methods of Assessment
   1. Problem sets
   2. Quizzes
   3. Four Exams
   4. Final Exam

4. Materials:
   2. Microsoft Powerpoint presentation of chapter by chapter outline and notes.
   3. Microsoft Powerpoint presentation of chapter figures.
   4. Quicktime animation of specific genetic processes.