

## **Proposals for the courses BMB303 and BMB401**

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*What follows are two separate proposals for the two new courses to be instituted with the revised Biochemistry major (to be known as Biochemistry and Molecular Biology). For simplicities sake we have prepared only one 3-year staffing model for these courses. It can be found on page 14 after the BMB303 proposal.*

## **Proposal for the course BMB401 Junior I. S. in Biochemistry and Molecular Biology**

### **1. Proposed title, course number, and catalog descriptions.**

#### *A. Course name and number*

BMB 401: Introduction to Independent Study in Biochemistry and Molecular Biology

#### *B. Catalog description*

An introduction to the techniques and practices of biochemical and molecular biological research focusing specifically on the design of experiments, data analysis, and information retrieval systems. Exploration of the literature related to the proposed I. S. thesis and the design of the research upon which the thesis will be based will be incorporated into the final paper. Prerequisite: Chem 212. Offered annually in the Spring.

### **2. Course objectives and rationale**

#### *A. Course objectives*

Our overall objectives are to help students develop skills in modern molecular and biochemical analyses, researching the relevant literature, and writing a detailed research proposal. A more detailed listing of the course objectives is provided in the sample course syllabus below.

Our specific student learning objectives for the course are:

*a. Critical thinking skills related to scientific research* - Critical thinking is a key goal of this course. The course will focus on two objectives that embody different aspects of critical thinking as applied to scientific research.

- *Placing scientific work into a larger perspective* - After completing this course, students should be able to identify significant papers in the fields of biochemistry and molecular biology relevant to their topic and be able to summarize them for written and oral presentation purposes.
- *Thinking critically about experimental design* - After completing this course, students should understand what controls are, what types are appropriate for a given experiment and how to design a series of carefully controlled experiments that will answer a specific question that they have generated.

*b. Develop skill in science writing* - Writing is an important objective of many courses at the College and we will focus on a particular type of writing, mainly

scientific writing in its various forms.

- After completing this course, students will demonstrate an ability to write a detailed research proposal. This will be accomplished by having students work closely with their Junior I. S. instructors as they develop their writing skills through a series of short papers focused on topics relevant to their I.S. topic and culminating in a research proposal for their Senior I. S. project.

*c. Ability to use the information retrieval resources* - There has been an explosion of data for the life sciences in recent years. This has created a real problem in finding the data that is relevant to your research questions. Thus modern life science researchers need to be able to access databases and find relevant information.

- After completing this course, students should be able to search the biochemical and molecular biological literature using *PubMed* to access *Medline* online.
- After completing this course, students should be able to access and manipulate databases, such as those available online in *GenBank* at the National Center for Biotechnology Information at the National Institutes of Health.
- After completing this course, students should have some skill in the use of proteomics analysis tools, such as those available online at the *ExPASy Molecular Biology Server* at the Swiss Institute of Bioinformatics.

Assessment as to how well students have achieved goals *a* and *b* will be through successful completion of the research proposal. Goal *c* will be evaluated through specific assignments that asks students to use these resources to retrieve specific information. Faculty will evaluate these efforts and assign grades and provide critiques when appropriate.

### *B. Rationale for the course*

We believe that while this is indeed a new course, it has at its foundation the current Chemistry 401 and Biology 401 offerings. We have taken the class lecture format for the first eight weeks and the writing of progressively longer papers from what is now done in Chem 401. However, in BMB 401 these will not involve fundamental concepts of structure and bonding, which is the topical focus of Chem 401, but will deal with fundamental concepts in biochemistry and molecular biology. Since the Biochemistry major was put in place in 1995, student majors have taken Chemistry 401 as their Introduction to Independent Study. The major criticism of the Biochemistry major by students the past six years has been that the topical focus of Chem 401 has not been particularly appropriate for their interests. BMB 401 was

planned to specifically address that legitimate criticism.

The decision to have BMB 401 culminate in a research paper on the project the student plans to carry out for a Senior Independent Study thesis is taken from Bio 401, where it has been in place for decades. In Bio 401 the students are taught the proper use of statistics in the first half of the term and then work one-on-one with a faculty advisor while writing up their proposed Senior I.S. project during the last half of the term. One definite advantage for BMB majors in taking the proposed BMB 401, rather than Bio 401, is they would once again deal with topics during the first eight weeks of the semester that are more closely aligned with their interests.

### 3. Sample Course Syllabus

The faculty who will teach Biochemistry and Molecular Biology 401: Introduction to Independent Study ("BMB 401" or "BMB Jr. I.S.") have several goals. These goals are based on our collective belief that scientific research begins in the library and that, to become an educated professional, the student must know how to retrieve previously published information, find information on a new topic, critically read and effectively write scientific papers, exchange ideas with other scientists, and make effective oral presentations. We want the student to become more confident and comfortable in scientific library research, scientific writing, and verbal communication skills. This course will meet from 9:30-11:00 on Tuesdays and Thursdays.

The specific goals of the course are:

1. To review and learn fundamental concepts of biochemistry and molecular biology.
2. To become familiar with our Science Library resources, both print and electronic.
3. To learn how to search the biochemical and molecular biological literature using *PubMed* to access *Medline* online.
4. To learn how to find, recognize, read, and use significant scientific manuscripts on a topic of choice.
5. To learn how to access and manipulate databases, such as those available online in *GenBank* at the National Center for Biotechnology Information at the National Institutes of Health.
6. To learn how to use proteomics analysis tools, such as those available online at the *ExPASy Molecular Biology Server* at the Swiss Institute of Bioinformatics.
7. To develop technical writing skills by writing a series of up to four progressively longer and more detailed papers, culminating in the research proposal on the projects they plan to carry out for their Senior Independent Study thesis research

projects.

8. To become familiar with acceptable guidelines for writing and referencing scientific manuscripts.

9. To develop critical thinking skills by having each student review his or her written work, as well as the anonymous writing of other students taking the course.

10. To develop critical thinking skills by reading and discussing as a group selected scientific publications.

11. To improve verbal communication skills through oral reports to the class and contributions to class discussions.

12. To develop independent work habits and thought processes.

The goals stated above are ones that have come out during several discussions of faculty members who would be involved in the new BMB major. Once EPC and the faculty as a whole approve the BMB major and the BMB 401 course, we plan to meet regularly and finalize the structure of the course during the 2001-2002 academic year. It will be offered for the first time during the spring of 2002-2003. A likely schedule will be for all faculty and students involved to meet as a group several times a week in a class format for the first eight weeks of the semester (until Spring Break), then for each student to meet one-on-one with a faculty advisor during the final six weeks when the paper on the proposed senior I.S. research project will be researched and written. The oral presentations will also likely come during the final six weeks.

#### **4. Relationship of the course to the structure of the two departments including course level, requirements, intended audience, and prerequisites.**

This course will be an upper level course intended and required for majors in BMB. Prerequisites: Chem 212.

#### **5. How frequently the course will be offered and impact on other courses**

This course will be offered every Spring semester. Offering BMB401 will result in fewer students in Chem401 and thus fewer faculty will be required to teach this course. This frees up one Chemistry faculty to teach in this course. Biology faculty have always been involved with their Junior IS students since one of the major goals of Biol401 is to prepare a proposal for the Senior IS. They typically receive teaching credit based on the number of advisees they have.

## **6. The relationship of the course to general education requirements**

This course will not contribute significantly to general education requirements.

## **7. Impact upon other departments or other interdepartmental programs**

This course will have no effect upon other departments or interdepartmental programs. Its impact upon the Biology and Chemistry Departments has already been described above.

## **8. Available Library resources**

*A. Currently available journal subscriptions that deal directly or cover some aspects of biochemistry and molecular biology*

Cell  
Molecular and Cellular Biology  
Journal of Biological Chemistry  
Biochemistry  
EMBO Journal  
Development  
Genetics  
Trends in Cell Biology  
Trends in Genetics  
Nature  
Science  
+ numerous e-journals

*B. Books that deal with biochemistry and/or molecular biology*

Because courses in molecular biology and biochemistry have been on the books for a number of years at Wooster, there is a sizable collection of books that deal with these topics in the Timken Science Library. There will be no need for an exceptional purchase request.

## **9. Three year staffing model with course in place.**

*Attached to BMB 303 proposal*

## **10. Letters of support from department chairs**

*Attached to BMB 303 proposal*

## **Proposal for the course BMB303 Techniques in Biochemistry and Molecular Biology**

### **1. Proposed title, course number, and catalog descriptions.**

#### *A. Course name and number*

BMB303 Techniques in Biochemistry and Molecular Biology

#### *B. Catalog description*

Introduction to basic methods in biochemistry and molecular biology, organized around a semester-long project in which students use molecular biological techniques to genetically engineer a protein and then purify that protein to determine the biochemical effects of those changes. Techniques covered include genetic engineering, protein purification, and analysis of enzyme kinetics. Prerequisites: Chemistry 102 and Biology 220. BMB majors: prior or concurrent enrollment in BMB 331 is recommended. Chem 211 is recommended for Biology majors. Offered annually in the Fall.

### **2. Course objectives and rationale**

#### *A. Course objectives*

Our overall objectives are to help students develop skill in modern molecular and biochemical analyses. This is vital in both the Biology and Biochemistry curriculums since these techniques are so integral to modern life science research including student IS projects. The course will emphasize protein chemistry and related techniques such as protein purification and analysis, molecular genetic techniques such as PCR, plasmid DNA purification and manipulation, DNA sequencing, and computer-based 'bioinformatics' techniques such as BLAST, Entrez and GenBank search strategies.

Our specific student learning objectives for the course are the following:

1. *Critical thinking skills related to scientific research* - The strengthening of critical thinking skills is a key goal of this course. The course will focus on three objectives that embody different aspects of critical thinking as applied to scientific research.

- *Evaluation of experimental approaches* - At the conclusion of the course, students should know advantages and limitations of various techniques and experimental approaches. They will be able to critique the application of these techniques to various problems in biochemistry and molecular biology.
- *Thinking critically about experimental design* - At the conclusion of the course,

students should understand what controls are, what types are appropriate for a given experiment and how to interpret typical biochemical and molecular data using controls.

- *Placing scientific work into a larger perspective* - At the conclusion of the course, students should be able to identify significant papers in the fields of biochemistry and molecular biology and be able to summarize them for oral and written presentation purposes. This type of work will have direct relevance to Junior and Senior IS.

2. *Develop skill in science writing* - Writing is a clear and important objective of many courses at the College and we will focus on a particular type of writing, mainly scientific writing in its various forms.

- At the conclusion of the course, students should demonstrate an ability to write a 'professional-grade' lab report that goes beyond what is required in Introductory courses. This type of writing and the skills learned will be directly relevant to Senior IS.

3. *Develop a detailed understanding of a specific subset of scientific knowledge* - Every course has specific content objectives and ours will be focused on students acquiring technical proficiency and detailed knowledge of a specific set of biochemical and molecular biological techniques that will have relevance to typical BMB IS projects. These techniques are summarized in the sample syllabus below.

- At the conclusion of the course, students should have acquired a moderate degree of mastery of the techniques covered in class.
- At the conclusion of the course, students should have acquired sufficient understanding of the theory behind the techniques covered in class to employ them in an appropriate manner. This is embodied by knowing when to use a technique to answer a question and when it is not appropriate.

4. *Develop quantitative skills*- Much of science involves generating and manipulating quantitative data.

- At the conclusion of the course, students should be able to properly summarize and present scientific data. This will be directly applicable to Senior IS.

Assessment will be through successful laboratory experimentation, written progress reports describing those experiments, oral presentations and written summaries about the primary literature, and the final lab report in which students analyze, summarize and present their data. Faculty will evaluate these efforts and assign grades and provide critiques when appropriate. A more detailed assessment plan will be developed if the revised major is approved.

## *B. Rationale for the course*

In a very real sense this course replaces Bio 309 and the laboratory portion of Chem 333 Biochemistry I. Thus the current rationales for the laboratory components of those two courses can be applied to this course. The significant change is that we are proposing to fuse these two courses and have the resulting interdisciplinary course jointly taught. This will allow students to benefit from seeing the different perspectives embodied by the two departments and understand how the different approaches are integrated to study biochemistry and molecular biology. The rationale for offering a course focused on biochemical and molecular biological techniques is offered below.

To ask relevant questions in the fields of biochemistry and molecular biology, a researcher must have some skill in the basic techniques commonly used in these two fields. In addition, they must possess basic critical thinking skills to design solid experiments that yield 'good' data. This course is designed to teach students those basic skills using a semester long project in which students will see the relationship between different techniques and how one goes about asking and answering questions in these fields in a thoughtful manner. Moreover, any science worth doing is worth communicating, so students will be required to clearly summarize and communicate their data and the data of others in standard scientific formats. All of these skills are important in order for a student to successfully conduct a Senior IS project in biochemistry and molecular biology and to become citizens who can contribute their scientific understanding to society.

### 3. Sample Course Syllabus

This course will meet for two, three-hour laboratory periods and a 1 hour recitation section each week.

#### Lab syllabus

*A tentative sequence for the semester-long project might be as follows*

**Week 1** Introduction to protein and nucleic acid databases and molecular modeling software

**Week 2** Design of mutagenesis strategy to mutate a protein; discussion of different strategies

**Week 3** Mutagenesis using PCR or other techniques; discussion of protein structure function issues.

**Week 4** Transformation of bacterial cells; discussion of role of different bacterial strains in molecular biology and different ways to transform cells

**Week 5** Screening of possible mutants; discussion of possible strategies and how restriction enzymes work

**Week 6** Verification of possible mutants using restriction enzymes and DNA sequencing; discussion of DNA sequencing technologies

**Week 7** Preparation of positives for further analysis

**Week 8** Transformation of positives into expression strain

**Week 9** Induction of expression; discussion of gene transcription/translation

**Week 10** Purification of protein; discussion of different purification techniques

**Week 11** Verification of purification using PAGE

**Week 12** Discussion of protein assays, preparation of assay

**Week 13** Measurement of enzyme activity; discussion of how this informs our understanding of how a protein works

**Week 14** Compilation of results, molecular modeling

### Sample presentation topics

*Many of these have been done in Bio 309 Topics in Molecular Biology. It is not necessary that all of these be completed in 1 year. This is just a sample of the range of topics we might cover.*

*Presentation 1:* Short presentations by all students defining some of the jargon of biochemistry and molecular biology

*Presentation 2:* "Unit 2: The Nature of the Genetic Code" as found in *Discovering Molecular Genetics* by J. H. Miller

*Presentation 3:* "Unit 6: Genetic Regulatory Mechanisms" as found in *Discovering Molecular Genetics* by J. H. Miller

*Presentation 4:* "Unit 8: Structure-Function Relationships in Proteins" as found in *Discovering Molecular Genetics* by J. H. Miller

*Presentation 5:* Dr. Borders' NSF Grant. What is he trying to accomplish?

*Presentation 6:* How does protein secretion work in bacteria?  
"Secretion across the bacterial outer membrane" Wandersoma  
"Export of proteins to the cell envelope in *Escherichia coli*" Murphy and Beckwith both are from *Escherichia coli and Salmonella: Cellular and Molecular Biology* edited by Neidhardt

*Presentation 7:* The wonders of PCR *Readings from Applied Molecular Genetics*

*Presentation 8:* Getting DNA into cells  
Readings: "Introduction of DNA into living cells" in *Gene Cloning* 1995 T. A. Brown O.

*Presentation 9:* "Epigenetics: Regulation through Repression" Wolffe, A. P. and Matzke, MA. 1999 *Science* Vol. 286 pp. 481-486.  
"Genetic Requirements for Inheritance of RNAi in *C. elegans*" Grishok, A., et al., 2000 *Science* Vol 287 pp. 2494-2497.

*Presentation 10:* "Dynamic localization of protein phosphatase type 1 in the mitotic cell cycle of *Saccharomyces cerevisiae*" Bloecher, A., and Tatchell, K. 2000 *J. Cell Biol.*

*Presentation 11:* "Genome-wide analysis of developmental and sex-regulated gene expression profiles in *Caenorhabditis elegans*" Jiang, M., et al 2001 *Proc. Nat'l. Acad. Sci.* Vol 98 pp. 218-223

### Other sample assignments

*Progress Reports.* Progress reports will be assigned at key junctures in the project to describe what has been accomplished and what is planned. These will be from 3-5 pages in length.

*Final Lab Report.* This will be a 7-10 page lab report that will describe the results of the semester long project. It will be complete and done in a "professional manner" meaning that it will be in the style of a typical journal article. It will be the capstone assessment tool.

### Required Texts

Readings will be assigned from the following texts to help students understand the strengths and weaknesses of the techniques used in the class.

Miesfeld, R. L. *Applied Molecular Genetics* Wiley-Liss Publishing NY 293pp. 1999.

Hardin et al *Cloning, Gene Expression, and Protein Purification: Experimental Procedures and Process Rationale* Oxford University Press 435pp. 2001.

Readings for presentations excerpted from:

Neidhardt *Escherichia coli and Salmonella: Cellular and Molecular Biology*

J. H. Miller *Discovering Molecular Genetics*

Various current journal articles

#### **4. Relationship of the course to the structure of the two departments including course level, requirements, intended audience, and prerequisites.**

This course will be an upper level course intended for majors in BMB, Biology, and Chemistry. It will be a required course for BMB majors and an elective for Biology and Chemistry majors. The prerequisites are Chemistry 102 and Biology 220.

#### **5. How frequently the course will be offered and impact on other courses**

This course will be offered every Fall semester. It is a replacement course for Bio 309 and the laboratory portion of Chem 333 Biochemistry I. Thus, the addition of this course results in a SHRINKAGE of the curriculum and we would hope EPC would be doing cartwheels at this moment, giggling like teenagers at a sleep-over. To accommodate this course we have had to flip the Fall and Spring course offerings of Drs. Fraga and Morgan. This actually makes it easier for them to offer FYS every four

years since it allows them to rotate it with their Non-majors course offerings (more cartwheels). There is no impact upon the course offerings of the other members of the Biology department and only a small increase in average IS load (goes from 3 to 4 Senior IS advisees a year). The total number of non-majors, Introductory and upper level course offerings are well within the range we have observed over the past five years.

For Chemistry, this course results in the removal of the laboratory portion of Biochemistry 1 (formerly Chem333) and the reassignment of that 0.5 teaching credit to the Chemistry faculty who will be team-teaching in BMB303 (most likely the same faculty). No other faculty will be affected by these changes. There will also be a slight reduction in I. S. loads for Chemistry faculty (4 to 3 on average).

## **6. The relationship of the course to general education requirements**

Given that this course is an upper level course with two science courses as prerequisites, it will not contribute significantly to general education requirements.

## **7. Impact upon other departments or other interdepartmental programs**

Adding this course and dropping Bio 309 and the laboratory portion of Chem 333 will have no effect upon other departments or interdepartmental programs. Its impact upon the Biology and Chemistry Departments has already been described above.

## **8. Available Library resources**

*A. Currently available journal subscriptions that deal directly or cover some aspects of biochemistry and molecular biology*

- Cell
- Molecular and Cellular Biology
- Journal of Biological Chemistry
- Biochemistry
- EMBO Journal
- Development
- Genetics
- Trends in Cell Biology
- Trends in Genetics
- Nature
- Science
- + numerous e-journals available at the library

*B. Books that deal with biochemistry and/or molecular biology*

Because courses in molecular biology and biochemistry have been on the

books for a number of years at Wooster, there is a sizable collection of books that deal with these topics in the Timken Science Library. There will be no need for an exceptional purchase request.

## **9. Three year staffing models with courses in place**

### **Three year course schedule for Biology**

*Assumptions of this model.* We assumed for the purposes of this model that all individuals who receive a leave in the Biology department are replaced. If this does not happen then this model will have to be modified to reflect that fact. For simplicities sake, we have simplified IS calculations by assuming that everyone will receive approximately 1.0 teaching credits for all IS assignments for the year (401 and 452). This is close to what we have observed for the past five years (about 0.75 to 1.25 teaching credits). See the original proposal for more details about IS.

*Any questions you may have regarding this three year staffing model for Biology should be directed to Drs. Fraga and Morgan.*

**2002-2003 Fall Semester**

| <u>Staff member</u>       |           | <u>Course</u>                                    | <u>Teaching Credit</u> |
|---------------------------|-----------|--------------------------------------------------|------------------------|
| Fraga                     | 03-380-00 | Neurobiology                                     | 1.0                    |
|                           | 03-380-80 | Neurobiology Lab                                 | 0.5                    |
|                           | 03-220-00 | Introduction to Biology of Cells                 | 0.5                    |
|                           | 03-220-80 | Introduction to Biology of Cells Lab             | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Hodge                     | 03-101-00 | First Year Seminar                               | 1.0                    |
|                           | 03-230-00 | Introduction to Biology of Populations           | 0.5                    |
|                           | 03-230-80 | Introduction to Biology of Populations Lab       | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Kern                      | 03-210-00 | Introduction to Biology of Organisms             | 0.5                    |
|                           | 03-210-80 | Introduction to Biology of Organisms Lab         | 0.5                    |
|                           | 03-304-00 | Mammalian Physiology                             | 1.0                    |
|                           | 03-304-80 | Mammalian Physiology Lab                         | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Loveless                  | 03-210-00 | Introduction to Biology of Organisms             | 0.5                    |
|                           | 03-210-81 | Introduction to Biology of Organisms Lab         | 0.5                    |
|                           | 03-350-00 | Population & Community Ecology                   | 1.0                    |
|                           | 03-350-80 | Population & Community Ecology Lab               | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Matlack                   | 03-113-00 | Animal Behavior                                  | 1.0                    |
|                           | 03-230-00 | Introduction to Biology of Populations           | 0.5                    |
|                           | 03-230-81 | Introduction to Biology of Populations Lab       | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Morgan                    | 03-101-00 | First Year Seminar                               | 1.0                    |
|                           | 0X-303-00 | Techniques in Biochemistry and Molecular Biology | 0.5                    |
|                           | 03-220-00 | Introduction to Biology of Cells                 | 0.5                    |
|                           | 03-220-81 | Introduction to Biology of Cells Lab             | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| <i>Requested position</i> | 03-1---00 | Non-major's course (TBA)                         | 1.0                    |
|                           | 03-333-00 | Plant Biology                                    | 1.0                    |
|                           | 03-333-00 | Plant Biology Laboratory                         | 0.5                    |
|                           | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| 2 FYS                     |           | 2 nonmajors courses                              |                        |
| 3 Introductory courses    |           | 5 upper level courses                            |                        |

**2002-2003 Spring Semester**

| <u>Staff member</u>       |           | <u>Course</u>                              | <u>Teaching Credit</u> |
|---------------------------|-----------|--------------------------------------------|------------------------|
| Fraga                     | 03-119-00 | Issues in Biology: Disease                 | 1.0                    |
|                           | 03-305-00 | Cell Physiology                            | 1.0                    |
|                           | 03-305-80 | Cell Physiology Laboratory                 | 0.5                    |
|                           | 0X-401-00 | Independent Study                          |                        |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
| Hodge                     | 03-230-00 | Introduction to Biology of Populations     | 0.5                    |
|                           | 03-230-80 | Introduction to Biology of Populations Lab | 0.5                    |
|                           | 03-352-00 | Ethology                                   | 1.0                    |
|                           | 03-352-80 | Ethology Lab                               | 0.5                    |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
| Kern                      | 03-116-00 | Human Anatomy & Physiology                 | 1.0                    |
|                           | 03-116-80 | Human Anatomy & Physiology Lab             | 0.5                    |
|                           | 03-310-00 | Comparative Vertebrate Morphology          | 1.0                    |
|                           | 03-310-80 | Comparative Vertebrate Morphology Lab      | 0.5                    |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
| Loveless                  | 03-230-00 | Introduction to Biology of Populations     | 0.5                    |
|                           | 03-230-81 | Introduction to Biology of Populations Lab | 0.5                    |
|                           | 03-360-00 | Evolution                                  | 1.0                    |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
|                           | 03-401-00 | Biostatistics portion of IS                | 0.5                    |
| Matlack                   | 03-210-00 | Introduction to Biology of Organisms       | 0.5                    |
|                           | 03-210-81 | Introduction to Biology of Organisms Lab   | 0.5                    |
|                           | 03-311-00 | Natural History of Vertebrates             | 1.0                    |
|                           | 03-311-80 | Natural History of Vertebrates Lab         | 0.5                    |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
| Morgan                    | 03-115-00 | Human Inheritance                          | 1.0                    |
|                           | 03-306-00 | Genetics                                   | 1.0                    |
|                           | 03-306-00 | Genetics Laboratory                        | 0.5                    |
|                           | 0X-401-00 | Independent Study                          |                        |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |
| <i>Requested position</i> | 03-210-00 | Introduction to Biology of Organisms       | 0.5                    |
|                           | 03-210-81 | Introduction to Biology of Organisms Lab   | 0.5                    |
|                           | 03-335-00 | Microbiology                               | 1.0                    |
|                           | 03-335-00 | Microbiology Laboratory                    | 0.5                    |
|                           | 03-401-00 | Independent Study                          |                        |
|                           | 03-452-00 | Independent Study Thesis                   | 0.5                    |

3 nonmajors courses  
 2 Introductory courses  
 7 upper level courses



### 2003-2004 Spring Semester

| <u>Staff member</u>       |            | <u>Course</u>                            | <u>Teaching Credit</u> |
|---------------------------|------------|------------------------------------------|------------------------|
| Fraga                     | 03-220-00  | Introduction to Biology of Cells         | 0.5                    |
|                           | 03-220-80  | Introduction to Biology of Cells Lab     | 0.5                    |
|                           | 03-305-00  | Cell Physiology                          | 1.0                    |
|                           | 03-305-80  | Cell Physiology Laboratory               | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 0X-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
| Hodge                     | 03-210-00  | Introduction to Biology of Organisms     | 0.5                    |
|                           | 03-210-80  | Introduction to Biology of Organisms Lab | 0.5                    |
|                           | 03-352-00  | Ethology                                 | 1.0                    |
|                           | 03-352-80  | Ethology Lab                             | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
| Kern                      | 03-116-00  | Human Anatomy & Physiology               | 1.0                    |
|                           | 03-116-80  | Human Anatomy & Physiology Lab           | 0.5                    |
|                           | 03-344-00  | Comparative Animal Physiology            | 1.0                    |
|                           | 03-344-80  | Comparative Animal Physiology Lab        | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
| Loveless                  | 03-118-00  | The Biology of the Tropics               | 1.0                    |
|                           | 03-360-00  | Evolution                                | 1.0                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
|                           | 03-401-00  | Biostatistics portion of IS              | 0.5                    |
| Matlack<br>(replacement)  | 03-210-00  | Introduction to Biology of Organisms     | 0.5                    |
|                           | 03-210-81  | Introduction to Biology of Organisms Lab | 0.5                    |
|                           | 03-311-00  | Natural History of Vertebrates           | 1.0                    |
|                           | 03-311-80  | Natural History of Vertebrates Lab       | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
| Morgan                    | 03-220-00  | Introduction to Biology of Cells         | 0.5                    |
|                           | 03-220-81  | Introduction to Biology of Cells Lab     | 0.5                    |
|                           | 03-306-00  | Genetics                                 | 1.0                    |
|                           | 03-306-00  | Genetics Laboratory                      | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 0X-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |
|                           |            |                                          |                        |
| <i>Requested Position</i> | 03-1----00 | Non-major's course (TBA)                 | 1.0                    |
|                           | 03-335-00  | Microbiology                             | 1.0                    |
|                           | 03-335-00  | Microbiology Laboratory                  | 0.5                    |
|                           | 03-401-00  | Independent Study                        |                        |
|                           | 03-452-00  | Independent Study Thesis                 | 0.5                    |

3 nonmajors courses  
 2 Introductory courses  
 7 upper level courses

**2004-2005 Fall Semester**

| <u>Staff member</u>                    |           | <u>Course</u>                                    | <u>Teaching Credit</u> |
|----------------------------------------|-----------|--------------------------------------------------|------------------------|
| Fraga                                  | 03-380-00 | Neurobiology                                     | 1.0                    |
|                                        | 03-380-80 | Neurobiology Lab                                 | 0.5                    |
|                                        | 03-220-00 | Introduction to Biology of Cells                 | 0.5                    |
|                                        | 03-220-80 | Introduction to Biology of Cells Lab             | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Hodge                                  | 03-230-00 | Introduction to Biology of Populations           | 0.5                    |
|                                        | 03-230-80 | Introduction to Biology of Populations Lab       | 0.5                    |
|                                        | 03-323-00 | Natural History of Invertebrates                 | 1.0                    |
|                                        | 03-323-80 | Natural History of Invertebrates Lab             | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Kern                                   | 03-101-00 | First Year Seminar                               | 1.0                    |
|                                        | 03-304-00 | Mammalian Physiology                             | 1.0                    |
|                                        | 03-304-80 | Mammalian Physiology Lab                         | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Loveless                               | 03-210-00 | Introduction to Biology of Organisms             | 0.5                    |
|                                        | 03-210-81 | Introduction to Biology of Organisms Lab         | 0.5                    |
|                                        | 03-350-00 | Population & Community Ecology                   | 1.0                    |
|                                        | 03-350-80 | Population & Community Ecology Lab               | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Matlack<br><i>(Requested position)</i> | 03-101-00 | First Year Seminar                               | 1.0                    |
|                                        | 03-230-00 | Introduction to Biology of Populations           | 0.5                    |
|                                        | 03-230-81 | Introduction to Biology of Populations Lab       | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| Morgan                                 | 03-115-00 | Human Inheritance                                | 1.0                    |
|                                        | 03-220-00 | Introduction to Biology of Cells                 | 0.5                    |
|                                        | 03-220-81 | Introduction to Biology of Cells Lab             | 0.5                    |
|                                        | 0X-303-00 | Techniques in Biochemistry and Molecular Biology | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| <i>Requested position</i>              | 03-210-00 | Introduction to Biology of Organisms             | 0.5                    |
|                                        | 03-210-80 | Introduction to Biology of Organisms Lab         | 0.5                    |
|                                        | 03-333-00 | Plant Biology                                    | 1.0                    |
|                                        | 03-333-00 | Plant Biology Laboratory                         | 0.5                    |
|                                        | 03-451-00 | Independent Study Thesis                         | 0.5                    |
| 2 FYS                                  |           | 1 nonmajors courses                              |                        |
| 3 Introductory courses                 |           | 6 upper level courses                            |                        |

### 2004-2005 Spring Semester

| <u>Staff member</u>       |           | <u>Course</u>                            | <u>Teaching Credit</u> |
|---------------------------|-----------|------------------------------------------|------------------------|
| Fraga                     | 03-220-00 | Introduction to Biology of Cells         | 0.5                    |
|                           | 03-220-80 | Introduction to Biology of Cells Lab     | 0.5                    |
|                           | 03-305-00 | Cell Physiology                          | 1.0                    |
|                           | 03-305-80 | Cell Physiology Laboratory               | 0.5                    |
|                           | 0X-401-00 | Independent Study                        |                        |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
| Hodge                     | 03-114-00 | Insects in Our World                     | 1.0                    |
|                           | 03-352-00 | Ethology                                 | 1.0                    |
|                           | 03-352-80 | Ethology Lab                             | 0.5                    |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
| Kern                      | 03-116-00 | Human Anatomy & Physiology               | 1.0                    |
|                           | 03-116-80 | Human Anatomy & Physiology Lab           | 0.5                    |
|                           | 03-310-00 | Comparative Vertebrate Morphology        | 1.0                    |
|                           | 03-310-80 | Comparative Vertebrate Morphology Lab    | 0.5                    |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
| Loveless                  | 03-118-00 | The Biology of the Tropics               | 1.0                    |
|                           | 03-360-00 | Evolution                                | 1.0                    |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
|                           | 03-401-00 | Biostatistics portion of IS              | 0.5                    |
| Matlack                   | 03-210-00 | Introduction to Biology of Organisms     | 0.5                    |
|                           | 03-210-81 | Introduction to Biology of Organisms Lab | 0.5                    |
|                           | 03-311-00 | Natural History of Vertebrates           | 1.0                    |
|                           | 03-311-80 | Natural History of Vertebrates Lab       | 0.5                    |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
| Morgan                    | 03-220-00 | Introduction to Biology of Cells         | 0.5                    |
|                           | 03-220-80 | Introduction to Biology of Cells Lab     | 0.5                    |
|                           | 03-306-00 | Genetics                                 | 1.0                    |
|                           | 03-306-00 | Genetics Laboratory                      | 0.5                    |
|                           | 0X-401-00 | Independent Study                        |                        |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |
| <i>Requested position</i> | 03-210-00 | Introduction to Biology of Organisms     | 0.5                    |
|                           | 03-210-81 | Introduction to Biology of Organisms Lab | 0.5                    |
|                           | 03-335-00 | Microbiology                             | 1.0                    |
|                           | 03-335-00 | Microbiology Laboratory                  | 0.5                    |
|                           | 03-401-00 | Independent Study                        |                        |
|                           | 03-452-00 | Independent Study Thesis                 | 0.5                    |

3 nonmajors courses  
 2 Introductory courses  
 7 upper level courses

### **Three year course schedule for Chemistry**

*Assumptions of this model.* The department averages one person on leave per academic year. During the 2002-2003 term both Virginia Pett and Richard Bromund will be on leave. This model assumes that these two positions will be replaced with one visiting position. Paul Gaus and Paul Edmiston are assumed to be on leave for the 2003-2004 and 2004-2005 terms, respectively. This reflects a probable situation given the timetable for eligibility by which such leaves can be pursued. Course credits for Junior Independent Study (401) are included in the model, and are approximated based on current numbers of chemistry and biochemistry majors. Course credits for Senior Independent Study (451 and 452) are not included. The distribution of Independent Study students is managed so that the overall teaching loads are equalized to the best extent possible.

*Any questions you may have regarding this three year staffing model for Chemistry should be directed to Drs. Borders and Edmiston.*

**Fall 2002-2003**

| <u>Staff member</u>                                           | <u>Course</u> | <u>Teaching Credit</u>                          |     |
|---------------------------------------------------------------|---------------|-------------------------------------------------|-----|
| Judy Amburgey-Peters                                          | IDPT- 101     | First Year Seminar                              | 1.0 |
|                                                               | CHEM-211-01   | Organic Chemistry I                             | 1.0 |
|                                                               | CHEM-211-80   | Organic Chemistry Lab                           | 0.5 |
| Montie Borders<br>( <i>Half-time position</i> )               | BMB-331-00    | Biochemistry I                                  | 1.0 |
|                                                               | BMB-303-00    | Topics in Biochemistry<br>and Molecular Biology | 0.5 |
| Richard Bromund<br>( <i>On leave</i> )                        |               |                                                 |     |
| Ellen Burns                                                   | IDPT - 101    | First Year Seminar                              | 1.0 |
|                                                               | CHEM-211-02   | Organic Chemistry I                             | 1.0 |
|                                                               | CHEM-211-81   | Organic Chemistry Lab                           | 0.5 |
|                                                               | CHEM-211-82   | Organic Chemistry Lab                           | 0.5 |
| Paul Edmiston                                                 | CHEM-111-01   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-215-00   | Analytical Chemistry                            | 1.0 |
|                                                               | CHEM-215-80   | Analytical Chemistry Lab                        | 0.5 |
| Paul Gaus<br>( <i>Chair</i> )                                 | CHEM-340-00   | Inorganic Chemistry                             | 1.0 |
|                                                               | CHEM-340-80   | Inorganic Chemistry Lab                         | 0.5 |
|                                                               | CHEM-340-81   | Inorganic Chemistry Lab                         | 0.5 |
| Wingfield Glassey                                             | CHEM-111-02   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-318-00   | Physical Chemistry I                            | 1.0 |
|                                                               | CHEM-318-80   | Physical Chemistry Lab                          | 0.5 |
| Virginia Pett<br>( <i>On leave</i> )                          |               |                                                 |     |
| Mark Snider<br>( <i>Half-time position</i> )                  | CHEM-111-03   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-111-80   | Introductory Chemistry Lab                      | 0.5 |
| Leave Replacement                                             | CHEM-111-04   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-111-81   | Introductory Chemistry Lab                      | 0.5 |
|                                                               | CHEM-318-81   | Physical Chemistry Lab                          | 0.5 |
|                                                               | CHEM-215-81   | Analytical Chemistry Lab                        | 0.5 |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-82   | Introductory Chemistry Lab                      | 0.5 |
| FYS                                                           |               |                                                 | 2   |
| Non-major                                                     |               |                                                 | 0   |
| Introductory                                                  |               |                                                 | 4   |
| Upper-Class                                                   |               |                                                 | 6.5 |
| Laboratories                                                  |               |                                                 | 12  |

### Spring 2002-2003

| <u>Staff member</u>                                           | <u>Course</u>                          | <u>Teaching Credit</u> |
|---------------------------------------------------------------|----------------------------------------|------------------------|
| Judy Amburgey-Peters                                          | CHEM-212-01 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-80 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.7                    |
| Montie Borders<br>( <i>Half-time position</i> )               | BMB-332-00 Biochemistry II             | 1.0                    |
|                                                               | BMB-401-00 Junior Independent Study    | 0.5                    |
| Richard Bromund<br>( <i>On leave</i> )                        |                                        |                        |
| Ellen Burns                                                   | CHEM-212-02 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-81 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.7                    |
| Paul Edmiston                                                 | CHEM-112-01 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-316-00 Instrumental Analysis      | 1.0                    |
|                                                               | CHEM-316-80 Instrumental Analysis Lab  | 0.5                    |
| Paul Gaus<br>( <i>Chair</i> )                                 | CHEM-101-00 10 Wonderful Things        | 1.0                    |
|                                                               | CHEM-341-00 Advanced Inorganic         | 1.0                    |
|                                                               | CHEM-341-80 Advanced Inorganic Lab     | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.2                    |
| Wingfield Glassey                                             | CHEM-319-00 Physical Chemistry II      | 1.0                    |
|                                                               | CHEM-319-80 Physical Chemistry Lab     | 0.5                    |
|                                                               | CHEM-320-00 Physical Chemistry III     | 1.0                    |
| Virginia Pett<br>( <i>On leave</i> )                          |                                        |                        |
| Mark Snider<br>( <i>Half-time position</i> )                  | CHEM-112-02 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-112-80 Introductory Chemistry Lab | 0.5                    |
| Leave Replacement                                             | CHEM-112-03 Introductory Chemistry I   | 1.0                    |
|                                                               | CHEM-111-81 Introductory Chemistry Lab | 0.5                    |
|                                                               | CHEM-319-81 Physical Chemistry Lab     | 0.5                    |
|                                                               | CHEM-212-82 Organic Chemistry Lab      | 0.5                    |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-82 Introductory Chemistry Lab | 0.5                    |
| Non-major                                                     | 1                                      |                        |
| Introductory                                                  | 3                                      |                        |
| Upper-Class                                                   | 7 (not including junior IS)            |                        |
| Laboratories                                                  | 10                                     |                        |

**Fall 2003-2004**

| <u>Staff member</u>                                           | <u>Course</u> | <u>Teaching Credit</u>                          |     |
|---------------------------------------------------------------|---------------|-------------------------------------------------|-----|
| Judy Amburgey-Peters                                          | CHEM-111-01   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-211-01   | Organic Chemistry I                             | 1.0 |
|                                                               | CHEM-211-80   | Organic Chemistry Lab                           | 0.5 |
|                                                               | CHEM-211-81   | Organic Chemistry Lab                           | 0.5 |
| Montie Borders                                                | CHEM-111-02   | Introductory Chemistry I                        | 1.0 |
|                                                               | BMB-331-00    | Biochemistry I                                  | 1.0 |
|                                                               | BMB-303-00    | Topics in Biochemistry<br>and Molecular Biology | 0.5 |
| Richard Bromund                                               | CHEM-111-03   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-111-80   | Introductory Chemistry Lab                      | 0.5 |
|                                                               | CHEM-215-80   | Analytical Chemistry Lab                        | 0.5 |
| Ellen Burns                                                   | CHEM-211-02   | Organic Chemistry I                             | 1.0 |
|                                                               | CHEM-211-82   | Organic Chemistry Lab                           | 0.5 |
|                                                               | CHEM-340-00   | Inorganic Chemistry                             | 1.0 |
| Paul Edmiston                                                 | CHEM-102-00   | Forensic Science                                | 1.0 |
|                                                               | CHEM-215-00   | Analytical Chemistry                            | 1.0 |
|                                                               | CHEM-215-81   | Analytical Chemistry Lab                        | 0.5 |
| Paul Gaus<br>( <i>On leave</i> )                              |               |                                                 |     |
| Wingfield Glassey                                             | IDPT -101     | First Year Seminar                              | 1.0 |
|                                                               | CHEM-111-04   | Introductory Chemistry I                        | 1.0 |
|                                                               | CHEM-111-81   | Introductory Chemistry Lab                      | 0.5 |
|                                                               | CHEM-318-80   | Physical Chemistry Lab                          | 0.5 |
| Virginia Pett                                                 | IDPT -101     | First Year Seminar                              | 1.0 |
|                                                               | CHEM-318-00   | Physical Chemistry I                            | 1.0 |
|                                                               | CHEM-318-81   | Physical Chemistry Lab                          | 0.5 |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-82   | Introductory Chemistry Lab                      | 0.5 |
| FYS                                                           | 2             |                                                 |     |
| Non-major                                                     | 1             |                                                 |     |
| Introductory                                                  | 4             |                                                 |     |
| Upper-Class                                                   | 6.5           |                                                 |     |
| Laboratories                                                  | 10            |                                                 |     |

### Spring 2003-2004

| <u>Staff member</u>                                           | <u>Course</u>                          | <u>Teaching Credit</u> |
|---------------------------------------------------------------|----------------------------------------|------------------------|
| Judy Amburgey-Peters                                          | CHEM-212-02 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-82 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-313-00 Advanced Organic           | 1.0                    |
|                                                               | CHEM-313-00 Advanced Organic Lab       | 0.5                    |
| Montie Borders                                                | BMB-332-00 Biochemistry II             | 1.0                    |
|                                                               | BMB-401-00 Junior Independent Study    | 1.0                    |
| Richard Bromund                                               | CHEM-216-00 Environmental Chemistry    | 1.0                    |
|                                                               | CHEM-216-80 Environ. Chemistry Lab     | 0.5                    |
|                                                               | CHEM-112-80 Introductory Chemistry Lab | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.5                    |
| Ellen Burns                                                   | CHEM-212-01 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-80 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-212-81 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.2                    |
| Paul Edmiston                                                 | CHEM-112-01 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-112-81 Introductory Chemistry Lab | 0.5                    |
|                                                               | CHEM-316-00 Instrumental Analysis      | 1.0                    |
|                                                               | CHEM-316-80 Instrumental Analysis Lab  | 0.5                    |
| Paul Gaus<br>( <i>On leave</i> )                              |                                        |                        |
| Wingfield Glassey                                             | CHEM-112-02 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-319-00 Physical Chemistry II      | 1.0                    |
|                                                               | CHEM-319-80 Physical Chemistry Lab     | 0.5                    |
| Virginia Pett                                                 | CHEM-112-03 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-319-81 Physical Chemistry Lab     | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 1.0                    |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-82 Introductory Chemistry Lab | 0.5                    |
| Non-major                                                     | 0                                      |                        |
| Introductory                                                  | 3                                      |                        |
| Upper-Class                                                   | 7 (not including junior IS)            |                        |
| Laboratories                                                  | 10                                     |                        |

**Fall 2004-2005**

| <u>Staff member</u>                                           | <u>Course</u> | <u>Teaching Credit</u>                       |     |
|---------------------------------------------------------------|---------------|----------------------------------------------|-----|
| Judy Amburgey-Peters                                          | CHEM-111-01   | Introductory Chemistry I                     | 1.0 |
|                                                               | CHEM-211-01   | Organic Chemistry I                          | 1.0 |
|                                                               | CHEM-211-80   | Organic Chemistry Lab                        | 0.5 |
| Montie Borders                                                | BMB-331-00    | Biochemistry I                               | 1.0 |
|                                                               | BMB-303-00    | Topics in Biochemistry and Molecular Biology | 1.0 |
| Richard Bromund                                               | IDPT -101     | First Year Seminar                           | 1.0 |
|                                                               | CHEM-215-00   | Analytical Chemistry                         | 1.0 |
|                                                               | CHEM-215-80   | Analytical Chemistry Lab                     | 0.5 |
|                                                               | CHEM-215-81   | Analytical Chemistry Lab                     | 0.5 |
| Ellen Burns                                                   | CHEM-103-00   | Non-Majors Chemistry                         | 1.0 |
|                                                               | CHEM-211-02   | Organic Chemistry I                          | 1.0 |
|                                                               | CHEM-211-81   | Organic Chemistry Lab                        | 0.5 |
|                                                               | CHEM-211-82   | Organic Chemistry Lab                        | 0.5 |
| Paul Edmiston<br>( <i>On leave</i> )                          |               |                                              |     |
| Paul Gaus                                                     | CHEM-111-02   | Introductory Chemistry I                     | 1.0 |
|                                                               | CHEM-340-00   | Inorganic Chemistry                          | 1.0 |
|                                                               | CHEM-340-80   | Inorganic Chemistry Lab                      | 0.5 |
|                                                               | CHEM-340-81   | Inorganic Chemistry Lab                      | 0.5 |
| Wingfield Glassey                                             | IDPT -101     | First Year Seminar                           | 1.0 |
|                                                               | CHEM-111-03   | Introductory Chemistry I                     | 1.0 |
|                                                               | CHEM-111-80   | Introductory Chemistry Lab                   | 0.5 |
|                                                               | CHEM-318-80   | Physical Chemistry Lab                       | 0.5 |
| Virginia Pett                                                 | CHEM-111-04   | Introductory Chemistry I                     | 1.0 |
|                                                               | CHEM-318-00   | Physical Chemistry I                         | 1.0 |
|                                                               | CHEM-318-81   | Physical Chemistry Lab                       | 0.5 |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-81   | Introductory Chemistry Lab                   | 0.5 |
|                                                               | CHEM-111-82   | Introductory Chemistry Lab                   | 0.5 |
| FYS                                                           | 2             |                                              |     |
| Non-major                                                     | 1             |                                              |     |
| Introductory                                                  | 4             |                                              |     |
| Upper-Class                                                   | 7.0           |                                              |     |
| Laboratories                                                  | 12            |                                              |     |

### Spring 2004-2005

| <u>Staff member</u>                                           | <u>Course</u>                          | <u>Teaching Credit</u> |
|---------------------------------------------------------------|----------------------------------------|------------------------|
| Judy Amburgey-Peters                                          | CHEM-212-01 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-80 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 1.0                    |
| Montie Borders                                                | BMB-332-00 Biochemistry II             | 1.0                    |
|                                                               | BMB-401-00 Junior Independent Study    | 1.0                    |
| Richard Bromund                                               | CHEM-112-02 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-112-80 Introductory Chemistry Lab | 0.5                    |
|                                                               | CHEM-112-81 Introductory Chemistry Lab | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.5                    |
| Ellen Burns                                                   | CHEM-212-02 Organic Chemistry II       | 1.0                    |
|                                                               | CHEM-212-81 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-212-82 Organic Chemistry Lab      | 0.5                    |
|                                                               | CHEM-313-00 Advanced Organic           | 1.0                    |
| Paul Edmiston<br>( <i>On leave</i> )                          |                                        |                        |
| Paul Gaus                                                     | CHEM-101-00 10 Wonderful Things        | 1.0                    |
|                                                               | CHEM-341-00 Advanced Inorganic         | 1.0                    |
|                                                               | CHEM-340-81 Advanced Inorganic Lab     | 0.5                    |
| Wingfield Glassey                                             | CHEM-112-02 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-319-00 Physical Chemistry II      | 1.0                    |
|                                                               | CHEM-319-80 Physical Chemistry Lab     | 0.5                    |
| Virginia Pett                                                 | CHEM-112-03 Introductory Chemistry II  | 1.0                    |
|                                                               | CHEM-319-81 Physical Chemistry Lab     | 0.5                    |
|                                                               | CHEM-401-00 Junior Independent Study   | 0.5                    |
| Mary Kilpatrick<br>( <i>Chem 111 Laboratory Coordinator</i> ) | CHEM-111-82 Introductory Chemistry Lab | 0.5                    |
| Non-major                                                     | 1                                      |                        |
| Introductory                                                  | 3                                      |                        |
| Upper-Class                                                   | 7 (not including junior IS)            |                        |
| Laboratories                                                  | 9                                      |                        |

## 10. Statements of chairs

*Attached*