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| COURSE IMPLEMENTATION DATE: | September 2007 |
| COURSE REVISED IMPLEMENTATION DATE: | |
| COURSE TO BE REVIEWED: | March 2011 |
| (Four years after UPAC final approval date) | (MONTH YEAR) |

OFFICIAL COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.

Shaded headings are subject to change at the discretion of the department and the material will vary - see course syllabus available from instructor

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| FACULTY/DEPARTMENT: | Faculty of Science, Health & Human Services/Chemistry | |
| CHEM 350 | | 3 |
| COURSE NAME/NUMBER | FORMER COURSE NUMBER | UCFV CREDITS |
| | Introductory Biochemistry Laboratory | |
| COURSE DESCRIPTIVE TITLE | | |

CALENDAR DESCRIPTION:

This course introduces students to many of the fundamental laboratory techniques employed in biochemistry research, with a focus on proteins and lipids. Topics and techniques that may be covered will include spectrophotometry, gel filtration, enzyme kinetics, isolation of lipids, determination of fatty acid profiles, HPLC, characterization of model membrane systems, membrane permeability, lipid-based systems for biomedical applications, and characterization of simple carbohydrates. The lecture part of the course will provide the theoretical background for the labs.

PREREQUISITES: CHEM 214 or BIO 320
COREQUISITES:

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| SYNONYMOUS COURSE(S) | SERVICE COURSE TO: |
| (a) Replaces: <u>n/a</u> | |
| (Course #) | (Department/Program) |
| (b) Cannot take: <u>n/a</u> for further credit. | |
| (Course #) | (Department/Program) |

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| TOTAL HOURS PER TERM: | 55.50 | TRAINING DAY-BASED INSTRUCTION | |
| STRUCTURE OF HOURS: | | LENGTH OF COURSE: | |
| Lectures: | 19.5 Hrs | HOURS PER DAY: | |
| Seminar: | | | |
| Laboratory: | 36 Hrs | | |
| Field Experience: | Hrs | | |
| Student Directed Learning: | Hrs | | |
| Other (Specify): exams | Hrs | | |

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| MAXIMUM ENROLLMENT: | 24 |
| EXPECTED FREQUENCY OF COURSE OFFERINGS: | Every two years |
| WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only) | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department) | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE: | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

AUTHORIZATION SIGNATURES:

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|----------------------------------|--------------|---------------------------|---|
| Course Designer(s): | David Fenske | Chairperson: | (Science Curriculum Committee) Art Last |
| Department Head: | Art Last | Dean: | Wanda Gordon |
| UPAC Approval in Principle Date: | | UPAC Final Approval Date: | Mar. 30, 2007 |

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

Upon successful completion of this course, students will:

- understand and master basic biochemical techniques and methods, and
- have insight into selected properties of biological molecules.

METHODS:

The course will consist of weekly lectures in which the biochemical basis of the week's experiment will be summarized and discussed. These lectures will include discussions of the structure and function of biomolecules, key metabolic pathways, and relevant experimental techniques. The labs will constitute the main part of the course, and will follow directly from the lectures. Students will hand in two formal reports, and smaller "results reports" for the experiments which do not require formal reports. There will also be a written midterm and final exam.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR (Please check:) Yes No

METHODS OF OBTAINING PLAR:

Examination

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

Biochemistry, Stryer 5th edition, and laboratory handout (this may change).

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

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|--------------------------|-----|
| Formal reports (2 x 10%) | 20% |
| Results reports | 25% |
| Lab work | 15% |
| Midterm exam | 15% |
| Final exam | 25% |

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

An appropriate number of experiments will be selected from the following list. Topics may change from year to year depending on availability of instrumentation and feedback from previous years.

Experimental Outlines:

Check-in & pipetting exercises (1 week)

Spectrophotometry (2 weeks)

Gel filtration chromatography (1 week)

Proteolytic enzymes (1 week)

Enzyme kinetics (3 weeks)

Extraction of lipids from egg yolks (2 weeks)

Basic liposomology (2 weeks)

Other possible experiments may include:

- Purification of lysozyme
- Determination of fatty acid profiles of natural & commercial fats (saturated, unsaturated, and trans fatty acids).
- Carbohydrates and polarimetry
- Characterization of a protein by SDS-PAGE