**BIOL 135 –O1 Introduction to Biotechnology Laboratory**

**Syllabus St Bonaventure University**

**Class meetings: Instructor:**  Mrs. Laura Kopec

**Lab:**  Olean High School, Rm. 329

2:14-3:06 pm 716-375-8010, x3329

OHS, Room 329 [lkopec@olean.wnyric.org](mailto:lkopec@olean.wnyric.org)

**Office Hours:** 3:15-4:00 pm, MWF

**Credit Hours:** 1 Credit.

**Course Description:**

This laboratory course provides a user-friendly environment to introduce basic biotechnology techniques and practices to help students understand how to address biotechnology-related social concerns. Laboratory exercises include different laboratory practices in the field of biotechnology, ways to analyze and interpret experimental data, and the how to arrive at conclusions based on evidence.

**Department Learning Outcomes** may be found at <http://www.sbu.edu/academics/schools/arts-and-sciences/departments-majors-minors/biology/learning-outcomes>.

**Course Learning Outcomes:**

a. Students will understand the mode of inquiry of the natural sciences and apply basic investigatory skills in the context of GMOs as related to food safety.

b. Students will appreciate the basic approaches in biotechnology and its contributions to the model society.

c. Students will be able to design and perform a complete scientific investigation independently

d. Students will be able to apply the appropriate quantitative techniques to a data set such as graphical analysis, algebraic and dimensional analysis, and statistical testing, and correctly interpreting the result.

**Required Text:**

There is no textbook required.

Laboratory manual will be provided on Moodle.

***Laboratory manual and actual exercises will be used for exam purpose!***

**Grading:**

**Grade Ranges**

A 93% and above B-80 to 82% D+67 to 69%

A-90 to 92% C+77 to 79% D 63 to 66%

B+87 to 89% C 73 to 76% D-60 to 62%

B 83 to 86% C-70 to 72% F 59 % and below

**Value of Items Graded**

Group write-up 4 x 80 = 320

Final Exam 1 x 100 = 100

Participation points 1 x 20 = 20

Group Presentation 1 x 60 = 60

Total points = 500

**Participation points** The nature of lab activities requires attention to details and collaborative teamwork. Your engagement to every step is essential for your learning and success in this course. This will be a minimum expectation from your future employer. Let’s start cultivating this good habit now! Examples of expected behaviors are listed below:

Be on time. If you wish to complete lab activities as scheduled, don’t come late.

Read instructions carefully, and more importantly, follow instructions.

Ask questions when you cannot find answers on your own!

Take initiative to work with your lab partner. If you let him/her do everything, he/she will also collect all the points, and you get none.

Clean up after you complete the lab. This includes

1. Dispose trash into appropriate trash bins;
2. Return equipment and reagents to assigned area;
3. Wipe off any spilled chemicals on your bench;

**Final Exam** will cover all laboratory information and skills from all 5 units.

**Lab write-up Group submission is expected for Unit 1-4.** Students will work as a group of 3 or 4 to complete the assigned tasks, answer all questions and hand in their work at the end of each unit. There will be guide questions on worksheets for students to answer.

**Group presentation** is a way that students use PowerPoint to present their Unit 5 project after their investigation on current safety concerns on GMOs. Students will use their learning from previous units and apply to a particular ongoing GMO concern, carefully propose an experiment and investigate the projected outcome to reach their conclusions. Instructor will provide targeted guide and recommendations for each project.

The rubric for Group Presentation and laboratory manual for unit activity will be provided on Moodle in a timely manner.

**Attendance and Missing Exams:**

Full attendance and completing graded items as scheduled is expected. It is the student’s responsibility to make up for the coursework if he/she chooses to miss a lab period(s) or the final exam. Missing a lab period or final exam and desiring accommodation for an alternative lab time requires a significant reason with official documentations, a demonstrated pattern of regular attendance, and the student contacting the instructor at least a week prior to the scheduled exam. In case of emergency, the student should contact the instructor immediately.

**Intellectual Property and Academic Honesty:**

All material cited in the course content is copyrighted, by virtue of its publication on the internet, under the [Millennium Act](http://www.copyright.gov/legislation/dmca.pdf). Therefore, students are asked to respect the intellectual property of the authors. It is illegal to copy or distribute any of these materials unless it is for personal use, or you have obtained the consent of the authors of the materials.

**Discussions** on course subjects among students are highly encouraged only if it is to improve one’s learning and understanding. **Cheating** and **plagiarism** are prohibited. Once identified, it will lead to a grade of “**ZERO**” and will be reported to the dean’s office and the university. It is a serious matter and will be dealt with according to “*St. Bonaventure Academic Honesty Policy*” ([http://web.sbu.edu/friedsam/governing/ academic\_policies/academic\_honesty\_policy.pdf](http://web.sbu.edu/friedsam/governing/%20academic_policies/academic_honesty_policy.pdf)).

The following are some examples of academic dishonesty:

* Collaborating with another student in the planning, writing, or editing of a project without the knowledge of the instructor, or in ways that go beyond the instructor’s expectations.
* Obtaining general background information for an assignment from a printed or electronic source which is not acknowledged, and paraphrasing without citations.
* Inserting phrasing or paragraphs from printed or electronic sources without sufficient rewriting to demonstrate your own synthesis of ideas, *with or without crediting the original source*.

**Students with disabilities** are encouraged to contact the Disability Support Services Office, Doyle room 26, 375-2065 and shall follow the procedure stated in <http://web.sbu.edu/friedsam/governing/academic_policies/students_with_disabilities.htm>. Should a student need accommodations on the basis of disabilities, a discussion with instructor shall take place within the first week of the semester.

**Tentative Laboratory Schedule**

Introduction and laboratory safety

**Unit 1**: Scientific Investigation for Mission 13 (Sept 5 – Nov 2)

**Unit 2**: Examine GMOs vs non-GMOs – nutrition and detection

**Unit 3**: Why GMOs – fitness in different conditions

**Unit 4**: How might GMOs affect microorganisms in the soil: bacterial transformation and application to other species

**Unit 5**: Are GMOs safe for human consumption? (students design experiments, conduct online investigation and presentation)

Review for final exam

**Final exam (week of May 13-17, 2019, date TBA)**