



Credits: 4

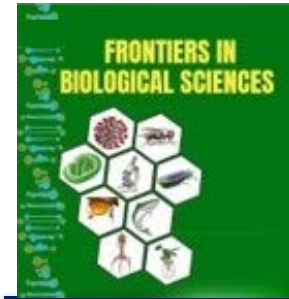
Cycle: 2026/2027

Academic area:
Ecology

Turn: Matutine

Number of students :
10

Semester 7th to 9th



SEMESTER NONE

TSE I Frontiers in biological sciences

Dr. Javier Salgado Ortiz

Schedule			
THEORY:	Monday 12:00 a 14:00	Where:	R building
PRACTICE:	Wednesday 12:00 a 14:00	Where:	R building

OBJETIVE: To introduce undergrad students to an english class as a second language as a way to enhance their skills to face the current challenges of a global society by sharing and discussing selected topics in biological sciences.

REQUIREMENT: To demonstrate moderate to advance level in science reading, writing and comprehensive skills of english as a second language.





**UNIVERSIDAD MICHOACANA DE SAN NICOLÁS DE
HIDALGO
FACULTAD DE BIOLOGÍA**



TSE I

COURSE PROGRAM: FRONTIERS IN BIOLOGICAL SCIENCES

General information:

Semester: Seventh to Ninth

Academic area: Ecology

Schedule: 4 hours/week (Theory 2, Practice 2)

Number of weeks along the semester: 16

Number of credits: 4

Date of elaboration: May 2024

Participants in the elaboration: Dr. Javier Salgado Ortiz

Date of last revision: May 2024

Participants in the last revision: Dr. Javier Salgado Ortiz, Dr. José Fernando Villaseñor Gómez

Professors who teach the class: Dr. Javier Salgado Ortiz

Correlation with other biology courses: The course involves a variety of topics related directly to all academic research areas, i.e., Ecology, Evolution, Natural Resources Management, Cell Biology, Physiology, Genetics, as well as Socioeconomics subjects.

Professional profile of the professor: Professor with teaching and research experience at university level, related to any main topic in biological sciences, with high proven proficiency in English as a second language.

Introduction

In the last 50 years, human society has been experiencing prominent changes in all scientific disciplines. Continuous innovations in technology and advances in scientific research are promoting the need of academic programs at universities worldwide, to revise and update contents in order to respond to the current demands of students' needs, and the development of tools, skills and professional capacities to face challenges of today's global society.

Within the last two decades, Biology is one of the scientific disciplines that has had revolutionary developments regarding new theoretical and methodological approaches, changes that today are constantly challenging the old traditional central questions and hypotheses that have prevail in both, evolution and ecology during previous historical periods, particularly over the past XX century. For instance, the traditional concepts related to Darwinian evolution like mutation, genetic drift etc., are known today as not being the only responsible factors causing genetic changes in species, but new factors, such as epigenetics, that today is also recognized as an important mechanism of genetic modifications.

At the present, it has been more difficult for many students and teachers to keep up with daily life and the mounting information in natural sciences, and especially biology. As such, innovations in education and the inclusion of modern and progressive teaching methods, it is of paramount importance to consider the innovation of strategies in the formation of undergraduates in any area. Realizing the importance of integrating the curriculum of students into a global society, the offering of new biology courses, such as this, taught in English as a second language, is aimed to provide new experiences, that contemplates the promotion of skills, views, and the development of new criteria in undergraduate students, allowing them to be more competitive to succeed under international standards within biological sciences.

General objective

To provide undergrad students a new learning experience that integrates them in a course taught in English as a second language, focused in exploring, reviewing and discussing diverse trend topics in biology, considered as “frontier science”, so that they can complement and enhance their professional education, allowing them to be competitive and critical under international standards in biological sciences.

PROGRAMATIC CONTENT

Course introduction. (2 hours)

Methods and general development of the course

This course its integrated by theory and practice.

Theory will be covered through various activities, including:

Conferences by experts in different biology fields. Conferences will be presented once every two weeks and will be either in person or virtual, depending on whether the speaker lives locally or resides in a different locality in Mexico or abroad. Conferences will have a 45 minutes’ duration, after which, students will have the opportunity to interact with the speaker asking questions or discussing ideas of interest.

Documentaries: These will cover various topics of research regarding biological sciences, focusing in new approaches and achievements reported by scientist from all over the world.

Scientific papers review. At least once every two weeks, students will be provided with a scientific paper, presenting results and discussions of most updated and trending ideas in biological sciences.

Practice: Based on information of conferences and documentaries, students will elaborate short essays describing the most relevant ideas and trends discussed in relation to the topic presented. In addition, papers assigned will be discussed by students in a round table moderated by the professor.

Seminars: Each student will prepare and present a seminar during specific classes during the semester, selecting a trend topic of interest.

EVALUATION

Evaluation will include theory and practice:

Theory will be evaluated with attendance of students to conferences, additional classes, and participation in class and at round tables. Students need to comply with 80% minimum of attendance to class to pass the class.

Practice will be evaluated by the assignment of written essays and seminars presentation. Evaluation will consider comprehension of the topics presented in class and also oral, writing and comprehensive skill of English as a second language.

Evaluation table

Theory (50%)

Attendance 10%

Participation in class 15%

Seminars selected topics 25%

Practice (50%)

Written essays 30%

Participation in round tables 20%

Note:

In order to approve the theory section of the course, it is mandatory that students attend at least 80% of the classes. Not completing this percentage will result in not approval of the course.

U.M.S.N.H

PROPOSED ACTIVITIES CALENDAR

WEEK 1	WEEK 2	WEEK 3
Introduction About the course: Dynamics of both theory and practice. Evaluation components.	Inaugural conference First essay assignment	Documentary First round table.
WEEK 4	WEEK 5	WEEK 6
Conference Second essay assignment. Assignment of scientific paper for discussion	Assignment of seminars to students Round table: Paper discussion	Documentary Round table
WEEK 7	WEEK 8	WEEK 9
Student seminars Research: Frontiers of biological sciences: Most relevant scientific news of the week	Conference Essay assignment. Round table: Paper discussion	Student seminars Research: Frontiers of biological sciences: Most relevant scientific news of the week
WEEK 10	WEEK 11	WEEK 12
Conference Essay assignment. Round table: Paper discussion	Student seminars Research: Frontiers of biological sciences: Most relevant scientific news of the week	Documentary Round table
WEEK 13	SEMANA 14	WEEK 15
Student seminars Research: Frontiers of biological sciences: Most relevant scientific news of the week	Closing conference Round table:	Closing remarks and evaluation of the course by students
Week 16		
Students evaluation		