



BIOLOGY 862

NEXTGEN SEQUENCING APPROACHES IN ECOLOGY, SYTEMATICS AND EVOLUTION

SPRING 2016

Instructor: Prof. José R. de la Torre, Ph.D.
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Schedule Wednesdays, 14:10 – 16:00 • HH 245

Course Description: Over the past few decades, Next Generation (NextGen) Sequencing approaches have dramatically changed the fields of Ecology, Systematics and Evolution. From comparative genomics to population diversity surveys, these new technologies have changed the types of questions researchers can address. However, these techniques have also meant adapting our analytical approaches to cope with the enormous quantities of data generated. In this graduate seminar, we will use primary research articles to explore the use of these new approaches to research in the fields of Ecology, Systematics and Evolution.

Enrollment: This graduate-level course is intended for graduate students interested in applying NextGen sequencing-based approaches to research topics in Ecology, Systematics and Evolution. Under exceptional circumstances, advanced undergraduate students will be allowed to enroll. ***Consent of the instructor is required for enrollment.***

Learning Objectives

- Read, understand and critique papers published in the scientific literature.
- Search the primary research literature to identify interesting articles of relevance to the topics discussed in class.
- Develop and present a one-hour lecture based on a selected research article.
- Describe the general methods utilized in NextGen sequencing and analysis.
- Write an annotated bibliography with primary research articles and reviews relevant to the topic chosen by the student.

Format:

- In the first week of class, we will jointly develop a list of topics to be explored by the class through presentations of primary research articles.
- Individual students will assign themselves to specific topics and, working with the instructor, will select a recently published primary research article of significant interest to the topic. The selected research article must be provided to the rest of the class at least one week prior to the presentation.
- Students will lead a critical discussion of the selected topic using the selected research article as a launching point. Presenting students are encouraged to request help from the instructor and/or classmates on how to organize their presentation and prepare visual aids.
- Each student will lead 1-2 discussions over the course of the semester, depending on the number of students enrolled in the class.
- For each class, students will read the assigned papers and be prepared to discuss the details of the paper in class. In addition, students will bring at least 3 questions for discussion by the class.
- Students will provide anonymous, constructive criticism of their peers' presentations via iLearn.
- Based on their interests and the material presented in the course, students will develop an annotated bibliography with primary research articles and reviews relevant to the topic chosen by the student.

Grading:

| | |
|------------------------------------|------|
| Participation in class discussions | 50% |
| Research article presentation(s) | 30% |
| Annotated bibliography | 20% |
| ----- | |
| Total | 100% |

Attendance: As we will only meet 15 times over the course of the semester, attendance is mandatory. Class participation is a significant portion of the final grade. Students will be permitted only one absence over the semester and must inform the instructor in advance of any planned absences. ***Any additional absences will cost students participation points.***

Class Website & E-mail Policy: Course material, including handouts and assignments, will be made available online through the iLearn system (<http://iLearn.sfsu.edu/>). If you encounter any problems downloading or printing these files, please contact the instructor immediately. Students are encouraged to e-mail questions to the instructor. Whenever e-mailing questions, please include "BIOL 862" in the subject line and identify yourself by signing the message with your **full name** and **SFSU ID number**. If appropriate, responses will be posted on iLearn or discussed in class—without identifying the student. ***Be advised that, in general, e-mails will receive responses within a day or two.***

Changes to the Syllabus or Lecture Schedule: The syllabus and lab schedule are subject to change. Changes to the syllabus or lab schedule will be announced in class and/or posted on iLearn.

Holidays: *March 23, 2016* *Spring Recess*

Statement on plagiarism and cheating: Students are expected to maintain a high level of academic integrity in all work pursued at SFSU. ***Cheating or plagiarism will not be tolerated under any circumstances in this class.*** Cheating on an examination will result in an automatic zero points for that exam. Plagiarism, defined as either direct copying or loose paraphrasing of text from any published work (including online) without appropriate referencing, or use of another person's work or ideas without appropriate attribution, will result in an automatic zero points for that entire assignment. There will be no second chances. Furthermore, any incidence of cheating or plagiarism will be reported to the Chair of the Biology Department, the Dean of the College of Science and Engineering, and the Office of Student Affairs for possible disciplinary action. Consequences can include penalties up to expulsion from the University.

Cell phones & pagers: Please silence cell phones and pagers before arriving in class.

American with Disabilities (ADA) Accommodation. SFSU is committed to providing reasonable academic accommodation to students with disabilities. Students with disabilities who need reasonable accommodations should contact the instructor. The Disability Programs and Resource Center (DPRC) will facilitate the accommodation process for individuals with verified disabilities. If a student is a DPRC client, he/she must present an RAV (Reasonable Accommodation Verification) AND an EAR (Exam Accommodation Request) to the instructor at the beginning of the semester. Students are responsible for submitting the completed EAR form to the DPRC. Any changes to the accommodation require prior approval by a DPRC specialist. Changes cannot be requested during an exam. The DPRC is located in the Student Service Building (SSB-110) and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).

SFSU policy on student disclosures of sexual violence. SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Dean of Students. To disclose any such violence confidentially, contact:

[The SAFE Place - (415) 338-2208; http://www.sfsu.edu/~safe_plc/]

[Counseling and Psychological Services Center - (415) 338-2208; <http://psyservs.sfsu.edu/>]

For more information on your rights and available resources: [<http://titleix.sfsu.edu>]

Important Deadlines for Add/Drop/Withdrawal:

February 8, 2016 (midnight)

Deadline for FACULTY to drop students from courses without a W.

February 9, 2016 (midnight)

Deadline for STUDENTS to drop courses without a W.

February 28, 2016

Deadline to add courses with instructor-issued permit number.

February 10 – April 26, 2016

Withdrawal period -- no documentation required.

Withdrawals will result in a “W” grade on transcript records.

April 27 – May 17, 2016

Withdrawal is permissible only for **serious and compelling reasons**. Students must file a petition to be reviewed by the Instructor and the Department Chair. Approved withdrawals will result in a “W” grade on transcript records. ***“Withdrawals are not normally permitted during the final three weeks except in verified cases of accident or serious illness where the cause of withdrawal is due to circumstances clearly beyond the student's control and where the assignment of an incomplete is not practical. Ordinarily, withdrawals in this category will involve total withdrawal from the University.”*** (SFSU Bulletin)