

## STAT 877 section 001

Statistical Methods for Molecular Biology

### COURSE INFORMATION

#### Statistical Methods for Molecular Biology

STAT 877 001 ( 3 Credits )

2022 Spring [1224]

#### Description

Develop statistical problems in gene mapping, high throughput -omics data analysis, phylogenetics and sequence analysis. Introduce ideas of key methods using published data. Statisticians learn statistical basis for research methodology. Collaboration among students and with biologists is encouraged through projects. Enroll Info: None

#### Prerequisite(s)

STAT 610 or STAT/MATH 710

#### Instruction Mode

Classroom Instruction

#### Section Level Com B

False

**Department:** Statistics

**College:** Letters and Science



**2022 Spring [1224]**

**Term Start Date:** Tuesday, 23-Nov-2021 **Term End Date:** Wednesday, 15-Jun-2022

 [ADD TO CALENDAR](#)

**Location and Schedule:** Service Memorial Institute 133 MW 1:00 PM-2:15 PM

**CRN:** 869531224

#### How Credit Hours are Met:

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This class meets for two 75-minute class periods each week over the semester and carries the expectation that students will work on course learning activities (reading, writing, problem sets, studying, etc.) for about 3 hours out of classroom for every class period. The syllabus includes more information about meeting times and expectations for student work.

# INSTRUCTORS AND TEACHING ASSISTANTS (TAs)

## Instructors



**CHRISTINA NEWTON**

✉ [KENDZIOR@BIOSTAT.WISC.EDU](mailto:KENDZIOR@BIOSTAT.WISC.EDU)



**Zijian Ni**

✉ [ZNI25@WISC.EDU](mailto:ZNI25@WISC.EDU)


## Instructor Availability and Preferred Contact:

Professor Kendziorski will be available from 10:00am-12:00pm on Wednesdays in 2122 Biotechnology Center (425 Henry Mall), and at other times by request. Please email to set up an appointment if you'd like to meet with Prof. Kendziorski outside of office hours.

TA Ni will be available from 4:00-5:00pm on Wednesdays in 1335M of the Medical Sciences Center (1300 University Avenue), and at other times by request. Please email to set up an appointment if you cannot make it to office hours.

# COURSE OUTCOMES, GRADING, and OTHER COURSE MATERIALS

## Course Learning Outcomes (CLOs):

 At the end of this course, students will be familiar with a number of state-of-the-art techniques for the pre-processing and analysis of high-throughput genomics datasets. They will understand the appropriateness and limitations of such methods in a variety of settings. This course brings together students with backgrounds in the computational and/or biological sciences. Students with a primarily quantitative/theoretical background will improve their skills in discussing scientific problems, and in identifying the statistical/computational aspects embedded in the processing and analysis of genomics datasets. Students with a biological background will improve their quantitative skills and their understanding of the assumptions underlying various analysis techniques. The learning objectives will be achieved through the 3 main components of this course: lectures, assignments, and the course project.

## Grading:

Quiz (10%)

Homework assignments (50%)

Course project paper (30%; 5% outline and 25% final paper)

Course project presentation (10%)

## Required Textbook, Software, & Other Course Materials:



## EXAMS, QUIZZES, PAPERS & OTHER MAJOR GRADED WORK

### Exams, Quizzes, Papers & Other Major Graded Work:

There will be one in-class quiz on basic biology on Wednesday, February 2. Students may not use their notes. If you are unable to take the quiz on February 2, please see Prof. Kendziorski as soon as possible to arrange to make up the quiz during her office hours.

Course project presentations will take place during the last 2-3 class periods.

## ADDITIONAL COURSE INFORMATION AND ACADEMIC POLICIES



### Teaching & Learning Data Transparency Statement

The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully reviews and vets all campus-supported digital tools used to support teaching and learning, to help support success through [learning analytics](#), and to enable proctoring capabilities. View the university's full [teaching and learning data transparency statement](#).



### Privacy of Student Records & the Use of Audio Recorded Lectures Statement

View [more information about FERPA](#).

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability who has an approved accommodation that includes recording. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities, with the exception of sharing copies of your personal notes as a notetaker through the McBurney Disability Resource Center. Students are otherwise prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.



## How to Succeed in This Course

Resource links to other campus services:

- [University Health Services](#)
- [Undergraduate Academic Advising and Career Services](#)
- [Office of the Registrar](#)
- [Office of Student Financial Aid](#)
- [Dean of Students Office](#)
- [Graduate Student Services](#)



## Course Evaluations

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your confidential feedback is important to me. I strongly encourage you to participate in the course evaluation.

### Digital Course Evaluation (AEFIS)

UW-Madison uses a digital course evaluation survey tool called [AEFIS](#). In most instances, you will receive an official email two weeks prior to the end of the semester, notifying you that your course evaluation is available. In the email you will receive a link to log into the course evaluation with your NetID. Evaluations are anonymous. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.



## Students' Rules, Rights & Responsibilities

### Rights & Responsibilities

For spring 2022, instructors and students should consult the following website for current campus health and safety guidance: [covidresponse.wisc.edu](https://covidresponse.wisc.edu).



## Diversity & Inclusion Statement

[Diversity](#) is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals. The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world.





## Academic Integrity Statement

By virtue of enrollment, each student agrees to uphold the high academic standards of the University of Wisconsin-Madison; academic misconduct is behavior that negatively impacts the integrity of the institution. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these previously listed acts are examples of misconduct which may result in disciplinary action. Examples of disciplinary action include, but is not limited to, failure on the assignment/course, written reprimand, disciplinary probation, suspension, or expulsion.



## Accommodations for Students with Disabilities

The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy ([UW-855](#)) require the university to provide reasonable accommodations to students with disabilities to access and participate in its academic programs and educational services. Faculty and students share responsibility in the accommodation process. Students are expected to inform faculty of their need for instructional accommodations during the beginning of the semester, or as soon as possible after being approved for accommodations. Faculty, will work either directly with the student or in coordination with the McBurney Center to provide reasonable instructional and course-related accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA. (See: [McBurney Disability Resource Center](#))



## Academic Calendar & Religious Observances

[Academic Calendar & Religious Observances](#)

