Course Syllabus

Edit

Syllabus: BSC2891 Spring 2025

This document serves as a contract between students enrolled in BSC2891 and myself (Chevrette) to be set our responsibilities to each other and to hold us both accountable. It is required that you read, understand, and agree with everything listed herein.

Instructor

Marc G Chevrette, PhD

Contact: **mchevrette@ufl.edu (mailto:mchevrette@ufl.edu)**

TAs

Neha Kashyap, **n.kashyap@ufl.edu (mailto:n.kashyap@ufl.edu)**

Joshua Holloway, **jholloway1@ufl.edu (mailto:jholloway1@ufl.edu)**

Any emails regarding the course should have the course number (e.g., BSC2891) in the subject line.

Overview

Discoveries in biology are driven as much by computer analysis as by laboratory work. BSC2891, Python Programming for Biologists, provides training in the theory and practice of computer programming with an emphasis on the practical techniques and problem solving skills required to use programming in biological research. This course is taught completely online.

Questions, troubleshooting, and other coursework related issues

The TAs should be your first point of contact for any troubleshooting questions and the instructor should be your first point of contact for any grading related questions. You are encouraged to use the canvas forums, email, or attend any of the scheduled office hours (via zoom).

Time

This course is 100% asynchronous and online, but strict deadlines are in place for weekly assignments and/or quizzes. **Weekly assignments are due the following Monday at 11:59p Florida time** but you are encouraged to do them earlier.

The only exceptions to this timing are listed below:

- Mon Jan 20 is Martin Luther King Jr. Day. Assignments this week will be due on Tues Jan 21 11:59p.
- Mon Mar 17 is during Spring Break. No assignments will be due this week.
- **Mon Mar 24, the Monday following Spring Break, WILL have assignments/quizzes due.**
- Instead of being due on the Monday, the final assignment and its quizzes are due the final day of the semester, Wed Apr 23. **However, there is still a smaller quiz in this section due Mon Apr 14.**

Quizzes will be graded automatically by canvas and should post (almost) immediately. Assignments on the course's remote computer are graded by me, so grades will not be posted for these immediately.

Each week is laid out on the course landing page and below

Weekly topic	Approximate relative effort
m01 | Get Connected (https://ufl.instructure.com/courses/524284/pages/m01-%7C-get-connected)	|====
m02 | UNIX Command Line (https://ufl.instructure.com/courses/524284/pages/m02-%7C-unix-command-line)	|==========
m03 | Biological Sequence Data (https://ufl.instructure.com/courses/524284/pages/m03-%7C-biological-sequence-data)	|========
m04 | Case Study 1- BLAST (https://ufl.instructure.com/courses/524284/pages/m04-%7C-case-study-1-blast)	|==========
m05 | Python Interpreter (https://ufl.instructure.com/courses/524284/pages/m05-%7C-python-interpreter)	|========
m06 | Python Scripting (https://ufl.instructure.com/courses/524284/pages/m06-%7C-python-scripting)	|==========

m07 | Python Lists (https://ufl.instructure.com/courses/524284/pages/m07-%7C-python-lists)	|================
m08 | Python Dictionaries (https://ufl.instructure.com/courses/524284/pages/m08-%7C-python-dictionaries)	|========
m09 | Case Study 2: Translating cDNA (https://ufl.instructure.com/courses/524284/pages/m09-%7C-case-study-2-translating-cdna)	|================
m10 | File Input/Output (https://ufl.instructure.com/courses/524284/pages/m10-%7C-file-input-slash-output)	|========
m11 | Case Study 3: Parsing Genome Features (https://ufl.instructure.com/courses/524284/pages/m11-%7C-case-study-3-parsing-genome-features)	|================
m12 | Case Study 4: Modeling Protein Structure (https://ufl.instructure.com/courses/524284/pages/m12-%7C-case-study-4-modeling-protein-structure)	|==== (instructional weeks 13-15) ====

Office Hours

Who	Day of week	Time (Florida time zone)	Zoom link
Kashyap (TA)	Thursday	6p-7p	**https://ufl.zoom.us/j/99118893125 (https://ufl.zoom.us/j/99118893125)**
Chevrette (Instructor)	Friday	9:30a-10:30a	**https://ufl.zoom.us/j/93669337664 (https://ufl.zoom.us/j/93669337664)**
Holloway (TA)	Friday	5:30p-6:30p	**https://ufl.zoom.us/j/96011610500**

			(https://ufl.zoom.us/j/96011610500)

Required and Recommended Textbooks

There is no required or recommended textbook for this course. All course materials will be provided by the instructor.

Grading Scale

Course grades will be determined based on percentage of total possible points. The following grading scale will be used:

A 80.00 – 100.0

B 60.00 – 79.99

C 40.00 – 59.99

D 20.00 – 39.99

E 00.00 – 19.99

Grades and Grade Points

Quizzes range from 1 to 4 points each and there are typically multiple of these per week. The first assignment is out of 10 points and all others are out of 50 or 100 points each.

For canvas quizzes (including canvas quizzes related to assignments, like the BLAST questions) late submissions are accepted, but will automatically lose 25% per day (minimum grade of 0). Canvas quizzes have a maximum of 2 attempts and the highest grade will be recorded.

For coding assignments, any assignments missing at the time of grading will receive a 0. **Assignment file names and output must be exactly match what is required by the assignment instructions.** If a file is named incorrectly and the correct filename is missing, it will receive a 0. For example, if an assignment asks to create a script at location

/home/student/myscript.py

this is the **only** location that will be graded.

Other files, including

/home/student/myscript_for_assignment.py

/home/student/assignments/myscript.py

etc., will not be graded, and if the correct filename does not exist at the time of grading then the assignment is missing and will receive a 0.

For information on current UF policies for assigning grade points, see:

https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/
(https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/)

Use of Generative Artificial Intelligence

Generative AI tools (e.g., ChatGPT, Copilot) are permitted for learning and exploration purposes in this

course, as they can provide insights into coding techniques, debugging, and broader programming concepts. **However, all assignments and assessments must be completed solely by the student using the methods and concepts taught in this course.** The use of AI-generated code or solutions in assignments is strictly prohibited. Assignments found to contain AI-generated content will receive a grade of 0.

Generative AI tools are excellent for brainstorming, troubleshooting errors, and learning how to improve your coding practices. They can provide general guidance and examples that may help deepen your understanding of programming and its applications in biology.

This course serves as a foundational introduction to programming with an emphasis on biological data analysis and problem-solving. It is critical to develop a solid understanding of programming fundamentals through active practice, as these skills will be essential for tackling advanced and specialized subjects later in your studies or career. Relying too heavily on AI for solutions can hinder your ability to:

- Grasp core concepts – AI-generated solutions may work but often skip key steps in the learning process.
- Adapt to biological challenges – AI might not understand specialized biological datasets or problems, leading to incorrect or overly generic answers.
- Troubleshoot effectively – Real-world programming requires critical debugging skills, which can only be developed through practice.
- Generative AI often provides solutions that are incorrect, incomplete, or inappropriate for specific biological contexts or programming tasks. Trusting AI without a foundational understanding of Python and bioinformatics principles can result in errors that compromise the accuracy and reproducibility of your work.

By adhering to the course's methods and completing assignments independently, you will develop the analytical and programming skills necessary for success in bioinformatics and computational biology. Remember, learning to code is as much about the process as it is about the result.

Attendance and Make-Up Work

Requirements for class attendance and make-up exams, assignments and other work are consistent with university policies that can be found at:

https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/ (https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/)

The flexibility of this asynchronous course comes with added responsiblity for students to ensure assignments and quizzes are completed on time. **Extensions on assignments will generally NOT be granted.**

In the case of emergency, I require documentation from the Dean of Students office. Here is the link to initiate such documentation: **https://care.dso.ufl.edu/instructor-notifications/ (https://care.dso.ufl.edu/instructor-notifications/)**

Computer malfunction does not constitute an emergency.

Online Course Evaluation Process

Student assessment of instruction is an important part of efforts to improve teaching and learning. At the end of the semester, students are expected to provide feedback on the quality of instruction in this course using a standard set of university and college criteria. Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at:

https://gatorevals.aa.ufl.edu/students/ (https://gatorevals.aa.ufl.edu/students/)

Students will be notified when the evaluation period opens and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via:

https://ufl.bluera.com/ufl/ (https://ufl.bluera.com/ufl/)

Summaries of course evaluation results are available to students at:

https://gatorevals.aa.ufl.edu/public-results/ (https://gatorevals.aa.ufl.edu/public-results/)

Academic Honesty

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment*."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see:

http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code)

Academic integrity is a cornerstone of this course, and cheating in any form is strictly prohibited. This includes but is not limited to:

- Copying solutions from classmates, online sources, or previous course materials.
- Sharing answers or code with others in the course, either directly or through external platforms.
- Using online chat groups, forums, or discussion boards outside of Canvas to solicit or provide solutions to course assignments.

While engaging in discussions about Python programming on forums (e.g., Stack Overflow, Discord, Reddit) can be a valuable way to learn, posting course-specific questions or assignments to solicit

answers is considered cheating. Similarly, participating in group chats or forums where answers to assignments are shared is a violation of academic integrity.

This policy is in place to:

- Ensure Fairness – This policy ensures that all students are assessed on their own effort and understanding of the material.
- Build Individual Skills – The goal of this course is to develop your programming skills through active practice and independent problem-solving. Copying code or solutions bypasses this critical learning process.
- Maintain Academic Standards – Providing or using unauthorized help undermines the value of your education and the efforts of your peers.

Instances of cheating will result in the following:

- A grade of 0 on the assignment in question.
- Reporting of the incident to the appropriate academic conduct authority, which may result in additional penalties as per university policy.
- Potential failure of the course in cases of repeated or egregious violations

How to Avoid Cheating

- Use Canvas discussion boards for asking and answering course-related questions, as these are moderated to ensure compliance with course policies.
- If seeking help online, ask general conceptual questions rather than posting assignment-specific details.
- If unsure whether a resource or activity is allowed, consult the instructor or teaching assistants for guidance. We are here to help.

The goal of this course is not just to complete assignments but to gain a strong foundational understanding of Python programming for biology. Upholding academic integrity is essential to achieving this goal and preparing for more advanced work in the field.

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

0001 Reid Hall, 352-392-8565

https://disability.ufl.edu/ (https://disability.ufl.edu/)

Campus Helping Resources

Students experiencing crises or personal problems that interfere with their general well- being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **www.counseling.ufl.edu (http://www.counseling.ufl.edu/)**

Counseling Services Groups and Workshops Outreach and Consultation Self-Help Library Wellness Coaching

- U Matter We Care, **www.umatter.ufl.edu (http://www.umatter.ufl.edu/)**
- *Career Connections Center,* First Floor JWRU, 392-1601, **https://career.ufl.edu/ (https://career.ufl.edu/)**
- Student Complaints:
  - Residential Course: **https://sccr.dso.ufl.edu/policies/student-honor-code-student- conduct-code/ (https://sccr.dso.ufl.edu/policies/student-honor-code-student-%20conduct-code/)**
  - Online Course: **https://distance.ufl.edu/getting-help/ (https://distance.ufl.edu/getting-help/)**

Diversity, Inclusion and Equity

This class fully supports the University of Florida's commitment to diversity, inclusion, and equity. By fostering a sense of belonging for students, staff and faculty while leveraging the uniqueness of the people who study and work at the university, we believe our campus community is enriched and enhanced by diversity, including but not limited to race, ethnicity, national origin, gender, gender identity, sexuality, class and religion. Our course will help foster an understanding of the diversity of our campus community, locally and globally.

We will strive to create a learning environment for our students that support a diversity of thoughts, perspectives and experiences while honoring your identities. To accomplish this, please let us know:

- If you have a name and/or set of pronouns that differ from those that appear in your official university records
- If you believe your performance in the class is being impacted by your experiences outside of class. Do not hesitate to reach out and talk with us. We want to be a resource for you. Anonymous feedback may be submitted, which may lead us to make a general announcement to the class, if necessary, to address your concerns.
- We, like many people, are still in the process of learning about diverse perspectives and identities. If something was said in class (by anyone) that makes you feel uncomfortable, please talk to us about it.

Contact us with any concerns regarding inclusion and equity, including accessibility of learning materials, equipment, and software.

Course Summary:

Date	Details	Due
Tue Jan 21, 2025	SSH Connect Assignment (https://ufl.instructure.com/courses/524284/assignments/6417300)	due by 11:59pm
	SSH Connect Quiz (https://ufl.instructure.com/courses/524284/assignments/6417256)	due by 11:59pm
	UF VPN Quiz (https://ufl.instructure.com/courses/524284/assignments/6417281)	due by 11:59pm
Mon Jan 27, 2025	Building Your Work Space Assignment (https://ufl.instructure.com/courses/524284/assignments/6417298)	due by 11:59pm
	GREP Quiz (https://ufl.instructure.com/courses/524284/assignments/6417292)	due by 11:59pm
	Logging on and Looking Around Quiz (https://ufl.instructure.com/courses/524284/assignments/6417251)	due by 11:59pm
	Making and Removing Directories Quiz (https://ufl.instructure.com/courses/524284/assignments/6417261)	due by 11:59pm
	Moving Around the UNIX Filesystem Quiz (https://ufl.instructure.com/courses/524284/assignments/6417253)	due by 11:59pm
	UNIX Filesystem Quiz (https://ufl.instructure.com/courses/524284/assignments/6417263)	due by 11:59pm
	Working With Text Files Quiz (https://ufl.instructure.com/courses/524284/assignments/6417289)	due by 11:59pm
Mon Feb 3, 2025	FASTA Quiz (https://ufl.instructure.com/courses/524284/assignments/6417270)	due by 11:59pm
	Homology Quiz (https://ufl.instructure.com/courses/524284/assignments/6417258)	due by 11:59pm

Date	Details	Due
	Less Simple Sequence Similarity Quiz (https://ufl.instructure.com/courses/524284/assignments/6417246)	due by 11:59pm
	Simple Sequence Similarity Quiz (https://ufl.instructure.com/courses/524284/assignments/6417260)	due by 11:59pm
	Transcription and Translation Quiz (https://ufl.instructure.com/courses/524284/assignments/6417250)	due by 11:59pm
Mon Feb 10, 2025	BLAST Quiz (https://ufl.instructure.com/courses/524284/assignments/6417291)	due by 11:59pm
	BLASTP I/O Quiz (https://ufl.instructure.com/courses/524284/assignments/6417266)	due by 11:59pm
	BLASTP Options Quiz (https://ufl.instructure.com/courses/524284/assignments/6417272)	due by 11:59pm
	BLASTP Output Formatting Field Options Quiz (https://ufl.instructure.com/courses/524284/assignments/6417286)	due by 11:59pm
	BLASTP Output Formatting Quiz (https://ufl.instructure.com/courses/524284/assignments/6417288)	due by 11:59pm
	Command Line BLASTP Assignment (https://ufl.instructure.com/courses/524284/assignments/6417299)	due by 11:59pm
	Command Line BLASTP Assignment Questions (https://ufl.instructure.com/courses/524284/assignments/6417287)	due by 11:59pm
	E-value Quiz (https://ufl.instructure.com/courses/524284/assignments/6417268)	due by 11:59pm
	Parsing BLAST Results Quiz (https://ufl.instructure.com/courses/524284/assignments/6417245)	due by 11:59pm

Date	Details	Due
Mon Feb 17, 2025	Python Interpreter Introduction Quiz (https://ufl.instructure.com/courses/524284/assignments/6417296)	due by 11:59pm
	Python math Module Quiz (https://ufl.instructure.com/courses/524284/assignments/6417295)	due by 11:59pm
	Python Strings and Numbers Quiz (https://ufl.instructure.com/courses/524284/assignments/6417247)	due by 11:59pm
	Python Variable Creation Quiz (https://ufl.instructure.com/courses/524284/assignments/6417267)	due by 11:59pm
	Python Variable Creation with Expressions Quiz (https://ufl.instructure.com/courses/524284/assignments/6417275)	due by 11:59pm
	Python Variable Creation with Functions Quiz (https://ufl.instructure.com/courses/524284/assignments/6417249)	due by 11:59pm
Mon Feb 24, 2025	Add Two Numbers (https://ufl.instructure.com/courses/524284/assignments/6417297)	due by 11:59pm
	Pico Text Editor Quiz (https://ufl.instructure.com/courses/524284/assignments/6417262)	due by 11:59pm
	Python Command-Line Parsing Quiz (https://ufl.instructure.com/courses/524284/assignments/6417273)	due by 11:59pm
	Python3 Scripting 'Hello World' Quiz (https://ufl.instructure.com/courses/524284/assignments/6417277)	due by 11:59pm
	Python3 Scripting Quiz (https://ufl.instructure.com/courses/524284/assignments/6417293)	due by 11:59pm
	Vi Text Editor Quiz (https://ufl.instructure.com/courses/524284/assignments/6417255)	due by 11:59pm

Date	Details	Due
Mon Mar 3, 2025	Adding to, Removing From and Sorting Lists Quiz (https://ufl.instructure.com/courses/524284/assignments/6417265)	due by 11:59pm
	List Comprehension Quiz (https://ufl.instructure.com/courses/524284/assignments/6417264)	due by 11:59pm
	List Indexing Quiz (https://ufl.instructure.com/courses/524284/assignments/6417283)	due by 11:59pm
	List Slice Quiz (https://ufl.instructure.com/courses/524284/assignments/6417254)	due by 11:59pm
	Python For Loop Index Quiz (https://ufl.instructure.com/courses/524284/assignments/6417274)	due by 11:59pm
	Python For Loop Quiz (https://ufl.instructure.com/courses/524284/assignments/6417278)	due by 11:59pm
	Python List Creation Quiz (https://ufl.instructure.com/courses/524284/assignments/6417252)	due by 11:59pm
Mon Mar 10, 2025	Dictionary Looping Quiz (https://ufl.instructure.com/courses/524284/assignments/6417257)	due by 11:59pm
	Dictionary Quiz (https://ufl.instructure.com/courses/524284/assignments/6417269)	due by 11:59pm
	Dictionary Sorting Quiz (https://ufl.instructure.com/courses/524284/assignments/6417285)	due by 11:59pm
Mon Mar 24, 2025	Genetic Code Quiz (https://ufl.instructure.com/courses/524284/assignments/6417259)	due by 11:59pm
	Splitting Strings Quiz (https://ufl.instructure.com/courses/524284/assignments/6417280)	due by 11:59pm
	Translating cDNA Assignment (https://ufl.instructure.com/courses/524284/assignments/6417301)	due by 11:59pm
	Translating cDNA Assignment Questions	due by 11:59pm

Date	Details	Due
	(https://ufl.instructure.com/courses/524284/assignments/6417279)	
Mon Mar 31, 2025	File Read Quiz (https://ufl.instructure.com/courses/524284/assignments/6417271)	due by 11:59pm
	File Write Quiz (https://ufl.instructure.com/courses/524284/assignments/6417290)	due by 11:59pm
Mon Apr 7, 2025	Case Study 3: Parsing Genome Features Assignment Questions (https://ufl.instructure.com/courses/524284/assignments/6417276)	due by 11:59pm
	GFF File Quiz (https://ufl.instructure.com/courses/524284/assignments/6417294)	due by 11:59pm
Mon Apr 14, 2025	Protein Structure Quiz (https://ufl.instructure.com/courses/524284/assignments/6417248)	due by 11:59pm
Wed Apr 23, 2025	Final Project Questions - Part 1 (https://ufl.instructure.com/courses/524284/assignments/6417282)	due by 11:59pm
	Final Project Questions - Part 2 (https://ufl.instructure.com/courses/524284/assignments/6417284)	due by 11:59pm
	model.py assignment (https://ufl.instructure.com/courses/524284/assignments/6417302)	due by 11:59pm