**Decorative banner that says Birmingham-Southern College with the BSC logo.
**

Department of Mathematics and Applied Computer Science

CAC 190

Fall 2022

# **Course Instructor:**

Dr. Anthony Winchester

Office: Olin 209

Email: [agwinche@bsc.edu](mailto:agwinche@bsc.edu)

Meeting Times: MW 2:00 pm – 3:20 pm

Location: Olin 201

Office Hours: Monday – 8:00 am – 11:00 am

Wednesday – 8:00 am – 11:00 am

Or by appointment

# **Course Description:**

The focus of this course is on solving programming problems; therefore, the bulk of the course will be writing code to solve assigned problems using Python. One goal for this course will be for students to learn to solve programming problems without relying on web searches for assistance. Additional topics will be taught throughout, but the primary focus will be on algorithm development.

**Major Course Activities**

# Pre-test

* Weekly problem sets, which will be reviewed, and solutions will be provided
* Post-test
* Code review

# **Course Delivery Description:**

Lectures will primarily consist of reviewing solutions. You will be expected to review a classmate’s program, and a classmate will review one of your programs at assigned times during the term. Additionally, you will be required to meet with me during class Code Review weeks to review your code (see schedule belowfor Code Review weeks). You will be expected to keep up with the tasks assigned on Moodle to ensure that you don’t fall behind.

# **Course Prerequisites:**

CAC 180

# **Required Course Materials:**

There will be a variety of readings assigned throughout the term. All readings will be posted on Moodle. This website is a Python tutorial that may be helpful throughout the term: <https://www.learnpython.org/>.

# **Technology Requirements:**

All course materials and assignments will be posted on Moodle. You will need a Python interpreter to complete the assignments. You may use Eclipse, Jupyter Notebook, or any other IDE you wish.

**It is expected all programming assignments be saved and submitted on Moodle in the following file formats (no exceptions):**

* **.py**
* **.ipynb**
* **.txt**

[IT Helpdesk](https://www.bsc.edu/campus/it/helpdesk.html)  offers telephone, email, and in-person support to all Birmingham-Southern students and employees. Please view the [Student Quick Guide](https://www.bsc.edu/campus/it/pdfs/StudentQuickGuide.pdf) for information on how to access BSC technology tools. Hours of operation are listed below.

**Hours of Operation** *Email:*[*helpdesk@bsc.edu*](mailto:helpdesk@bsc.edu)*, Monday-Friday, 7:30 a.m.- 4 p.m.  
Phone: 205-226-3033*

*24/7 Hotline via Apogee: 1-877-478-8861*

*Web address:* [*www.bsc.edu/campus/it/helpdesk.html*](file:///C:\Users\ajcroom\Downloads\www.bsc.edu\campus\it\helpdesk.html)

**Student Learning Outcomes (SLOs):**

At the conclusion of this project, students will be able to:

1. Organize and manipulate data
2. Write code for computational problems
3. Optimize alternative computational approaches for enhancing the creation and presentation of raw material

**Instructional Method and Learning Strategies:**

The course will consist of brief lectures, multiple problem sets, and code reviews. There will be group work, independent research, problem-solving activities, and analytical writings throughout the course.

**Course Outline/Schedule:**

Below is a tentative schedule for this course. The readings will consist of articles or other online material.

| Date/Week | Topics | Important Dates/Activities |
| --- | --- | --- |
| 8/24 – 8/26  Week 1 | Introduction  Pretest | 8/24 – Pretest Due |
| 8/29- 9/2  Week 2 | Basic Data Types  Data Structures | 8/29 – Problem Set #1 Assigned |
| 9/5 - 9/9  Week 3 | Sets  Strings | **9/5 – Labor Day – No Class**  9/7 – Problem Set #1 Due; Problem Set #2 Assigned  9/7 – Last day to add a class |
| 9/12 - 9/16  Week 4 | Code Review #1 |  |
| 9/19 - 9/23  Week 5 | Arithmetic  Algebra | 9/19 – Problem Set #2 Due; Problem Set #3 Assigned  9/21 – Last day to drop without a grade |
| 9/26 - 9/30  Week 6 | Combinatorics | 9/26 – Problem Set #4 Assigned  9/28 – Problem Set #3 Due |
| 10/3 - 10/7  Week 7 | Code Review #2 | 10/5 – Problem Set #4 Due  **10/6 – 10/9 – Fall Break** |
| 10/10 - 10/14  Week 8 | Number Theory | 10/12 – Last day to drop with a “W” |
| 10/17 - 10/21  Week 9 | Backtracking | 10/17 – Problem Set #5 Assigned |
| 10/24 - 10/28  Week 10 | Object-Oriented Programming | 10/24 – Problem Set #6 Assigned  10/26 – Problem Set #5 Due |
| 10/31 - 11/4  Week 11 | Object-Oriented Programming | 10/31 – Problem Set #7 Assigned  11/2 – Problem Set #6 Due |
| 11/7 - 11/11  Week 12 | Code Review #3 | 11/9 – Problem Set #7 Due |
| 11/14 - 11/18  Week 13 | Threading | 11/14 – Problem Set #8 Assigned |
| 11/21 - 11/25  Week 14 | Threading | 11/21 – Problem Set #8 Due; Problem Set #9 Assigned  **11/23 – 11/27 – Thanksgiving Break** |
| 11/28 – 11/30  Week 15 | Code Review #4 | 11/30 – Problem Set #9 Due; Post-test Due |
| 12/7 | Final |  |

**Course Activities, Assessments, & Interactions:**

This course consists of a sequence of activities, assessments, and interactions to support you in achieving the Student Learning Outcomes (SLO) for this course. You will engage in weekly code reviews, lots of coding, research, readings, a pre-test, and a post-test. The primary course artifacts required to achieve the Student Learning Outcomes (SLO) are described below:

**Code Reviews**

You will be required to review a classmate’s code during the code review weeks. Each student will submit one program from the week to a Moodle Workshop activity. Another student will be assigned to review the code and comment on specific features (e.g., efficiency, control structures used, did the program solve the problem, etc.). Additionally, students will be required to meet with me in class to review your code during each of these code review periods.

**Problem Sets**

There will be nine problem sets assigned during the term. These problem sets consist of 2-4 problems to be solved using Python. It is important that any attempt to solve the problem be submitted in the event the student cannot completely solve the problem.

**Pre-Test/Post-Test**

*It’s important to see growth throughout the course.* The pre-test and post-test are to be completed without any resources (closed book, no Internet). The score on the exam is not what will be evaluated. The improvement from the first exam to the second is what will be measured.

**Grading:**

| ACTIVITY | Weight |
| --- | --- |
| **Pre-Test** | **10%** |
| **Problem Sets** | **50%** |
| **Code Reviews** | **25%** |
| **Post-Test** | **15%** |

**Grading Scale**

| A | 93-100% | B- | 80-82% | D+ | 68-69% |
| --- | --- | --- | --- | --- | --- |
| A- | 90-92% | C+ | 78-79% | D | 60-67% |
| B+ | 88-89% | C | 73-77% | F | 0-59% |
| B | 83-87% | C- | 70-72% |  |  |

**Getting Started with this Course:**

**Moodle Learning Management System**

Students are responsible for checking Moodle for course readings, assignments, and announcements. ***No late assignments will be accepted.*** Any assignments not submitted because of not checking Moodle is the responsibility of the student. Students are also required to check grades on Moodle to verify that the correct grades are recorded for completed work.

**Logging into Moodle**

Birmingham-Southern College uses the Moodle Learning Management System (LMS). To get started with the course, do the following:

1. Log onto the BSC access point by going to: [moodle.bsc.edu](https://moodle.bsc.edu/).
2. Enter your BSC username and password.
3. The Moodle dashboard will open, and your courses will be displayed in the middle of the screen.
4. Select your course to begin.
5. The course welcome page will open. Read the welcome section and follow the instructions for getting started.

You will need your BSC User Name and Password to log in to the course. If you do not have or don’t know your User Name, contact the IT Help Desk at 205-226-3039 or[helpdesk@bsc.edu](mailto:helpdesk@bsc.edu).

**Course & College Policies:**

**Attendance**

Please attend meetings as scheduled and complete work as assigned.

**Assignments**

Assignments will be due as posted on Moodle. All instructions regarding submission format will be on Moodle. Assignments not following the protocol stated on Moodle ***will not*** be graded. ***Late submissions will not be accepted***; a grade of zero will be provided if assignment is not in Moodle. All assignments must be submitted in Moodle, please do not email me assignments.

**As stated earlier, it is expected all programming assignments be saved and submitted on Moodle in the following file formats (no exceptions):**

* **.py**
* **.ipynb**
* **.txt**

**While use of an online textbook or searching for syntax is permitted, searching for explicit answers to problems is prohibited.**

**Academic Integrity**

Always adhere to the honor code: As a member of the student body of Birmingham- Southern College, I recognize my responsibility to the traditions of the institution, to my fellow students and to myself. I recognize the significance of the honor system. I pledge that I have read and understand the Constitution of the Honor Council, including the Honor Code, and agree to be bound by its provisions.

Some of the work in this class will be collaborative in nature so it is expected that you will discuss assignments with your classmates. However, when you turn in work as your own, please be certain that what you have submitted is your understanding of the concept and not simply copied from another source. You must properly cite and reference all sources. If you are unsure how to do this properly, please reach out to me. If you are found in violation of the Honor Code by the Honor Council, you will receive no credit for the assignment, test, or quiz in question.

Additional information on the honor code and violations can be found in the Birmingham-

[Southern Student Handbook](https://bsc.edu/campus/studev/images/Student-Handbook-2019-2020.pdf) and on the BSC website.

**Netiquette**

1. Check your email often--this is the method the instructor will use most often to communicate with you.
2. Adhere to the same standards in your digital communications as you would for traditional written language.
3. Use clear and concise language.
4. Remember that all college level communication should have correct spelling and grammar.
5. Be cautious when using humor or sarcasm as tone can be lost in an email or discussion post.
6. Using all capitals is the equivalent of SHOUTING and considered RUDE.

**Student Grievance Policy**

Students should follow the complaint process as outlined in the current [Birmingham-Southern College Student Handbook.](https://www.bsc.edu/campus/studev/student-handbook/46/)

**Accessibility/ Americans with Disabilities Act**

Students with a disability that qualify under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act and require accommodations should be registered with BSC’s Accessibility Office. If you are registered for academic accommodation, please make an appointment with me as soon as possible to discuss any accommodation that may be necessary. During this discussion you are not expected to disclose any details concerning your disability though you may do so at your discretion. If you have a disability but have not yet registered, please contact Dr. Sandra Foster, Assistant Director of Accessibility Services and Resources, at 205-226-7909 (x1909) or [smfoster@bsc.edu](mailto:smfoster@bsc.edu), or visit Norton 228. Keep in mind that no accommodation will be made unless and until the instructor receives official notification from the College.

**Statement of Inclusion & Equity**

CAC 190 supports an inclusive learning environment where diverse perspectives are recognized and respected. As outlined in the Birmingham-Southern mission, the College challenges students to engage in their community and the greater world, to examine diverse perspectives, and to live with integrity.

**Title IX**

Birmingham-Southern College is committed to the creation and maintenance of a safe and healthy learning environment for students and the campus community. The College forbids any type of sexual or gender-based misconduct among its students, faculty, and staff. The College encourages all members of the academic community to report suspected sexual and gender-based misconduct to the appropriate authorities so that it can be investigated, remedied, and eliminated. BSC forbids retaliation against any person who has opposed, reported, or participated in an investigation concerning sexual or gender-based misconduct. See the BSC Title IX website ([www.bsc.edu/titleix](http://www.bsc.edu/titleix)) for more information, including a link to file an online report form and information about how and to whom to report in person. If you or a peer have experienced such misconduct, the Title IX webpage also includes information about the numerous resources available on campus and in the local community with whom the College encourages you to seek support. Confidential resources include counseling and health care providers, our Chaplain, and numerous faculty and staff members who are trained in assisting students by answering questions and helping them navigate their choices in seeking further support and the reporting process.

**Inclement Weather**

Inclement weather or other events beyond the control of the College that might cause risk or danger to students, faculty, and staff may occasionally result in changes to normal College operations, including cancellation of classes or events; the calendar schedule may be adjusted.

**BSC Resources for Writers and Readers**

Located in Humanities 102, the Writing Center offers in-person and virtual peer-to-peer tutoring and a quiet, supportive lab space to work on writing assignments. The Writing Center’s tutors are students from a wide variety of majors on campus and have the range to address student writing needs with discipline specificity. Supervised and assisted by Writing Center directors, our tutors provide one-on-one consultations for any student at any point in the writing process. During these consultations, tutors do not “edit” papers; instead, they assist students in addressing any potential writing issues, including content development, grammar usage, and citation formatting. Each tutorial is about 30 minutes long, free of charge, and available on a drop-in basis. There is no limit to how many tutorials a student may attend. Once logged in, a director will take your information and pair you with a tutor for your 30-minute tutorial.

The Writing Center is open Sunday-Thursday, 2pm-8pm. To ensure a full 30-minute tutorial time slot, students are encouraged to be mindful of assignment-heavy weeks, keep track of due dates, and visit the Writing Center at their earliest availability during open hours. Please contact Dr. Anna Williams or Laura Tolbert ([writingcenter@bsc.edu](mailto:writingcenter@bsc.edu)) with any questions or requests for virtual appointments.