1.0 Instructor

Anthony Whyte

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2.0 Course Description

SI 506 is designed for graduate students with little or no programming experience. Programmatic thinking, program design fundamentals, and code readability and maintainability are key themes. SI 506 together with SI 507 constitutes an introductory course series that focuses on programming fundamentals. As a foundational course SI 506 serves as a prerequisite for SI 507 along with other more advanced UMSI courses.

Again, no one who enrolls in this course is expected to have any prior programming experience. The programming language of instruction is Python 3.x, a object-oriented, dynamically typed, interpreted language popular among developers and data scientists.

2.1 Course prerequisites

None

2.2 Topics
Python 3.x will serve as the programming language of instruction. Key topics covered in this course include:

- variables, types (mutable/immutable), operators, statements and expressions
- ordered sets (Python sequences such as strings, lists, and tuples)
- associative arrays (Python dictionaries)
- sequence indexing and slicing
- iteration and control statements
- conditional execution
- truth value testing
- nested data structures
- errors, exceptions, exception handling, and debugging
- user-defined functions, built-in functions, and type methods
- file read/write (text, CSV, JSON)
- classes and objects
- module imports
- REST API requests
- Python 3.x and source code editor installation
- Python Interactive Console and Bash shell use

### 3.0 Communications

We use the [Piazza Q&A platform](https://www.piazza.com) to “crowd source” responses to programming questions and other issues of general concern. Contributions are not required but are encouraged.

If you have a question that pops up outside the lecture, lab, or office hours, post it on the Piazza Q&A platform. You can access Piazza via Canvas (you can also log in through Piazza directly after you have enrolled in our ‘Piazza class’ by clicking a link in an email or doing so on the Canvas site).

Avoid emailing your GSI or instructor directly with a programming question. Broadcast it on Piazza so that your classmates can participate in helping resolve your issue.

Also, please do not post problem set solutions on Piazza.
3.1 Announcements

General announcements and reminders will be posted to the MCommunity SI 506 course group lists.

3.2 Personal concerns

If a personal concern or private matter requires communications with the instructor only, never hesitate to talk to Anthony directly or email him at arwhyte@umich.edu.

For UMSI students you can also contact the UMSI Office of Student Affairs (OASA) if an issue arises that poses a challenge to your academic success. UMSI students can reach the OASA support team at the following email addresses:

- MSI students: umsi.advising.msi@umich.edu
- MHI students: umsi.advising.mhi@umich.edu

OASA is especially useful if an emergency requires you to step away from your coursework. OASA can help reach out to all your instructors in order to make them aware of your situation. OASA is also an excellent resource if you have questions about enrollment, retention, graduation, and career success. You can also contact OASA whenever you require academic or personal advising while in the program.

4.0 Assignments

SI 506 will feature weekly readings, problem sets, and lab activities. The weekly rhythm of assignments will help establish a regular, repeated pattern of learning in small “chunks”.

Assignment due dates will be posted on Canvas. Canvas is the source of truth for due dates and scores.

4.1 Readings

Readings are a key component of this course. The readings complement and amplify each lecture and lab. Readings should be completed before you attempt any of the accompanying problem set assignments. There is nothing to submit after completing a reading, but be prepared to budget
time to engage with the content thoughtfully.

Many of the texts will be sourced from O’Reilly, a prodigious publisher of computing monographs, videos, tutorials, and related content. O’Reilly provides an online platform for accessing its content that you can access free of charge as a U-M student. See the U-M Library instructions for creating an account and log in with your U-M email address (account confirmation required).

4.2 Problem sets

Problem sets comprising one or more programming problems to be solved using Python will be assigned weekly. Each programming assignment provides an opportunity to write code, solve programming problems, and demonstrate your increasing fluency in the language.

You can earn up to 100 points per problem set completed and submitted. Submissions are scored using an auto grader, itself written in Python. Problem set assignments will be released on Tuesday and must be completed and submitted no later than the following Monday evening at 11:59 PM Eastern time. No problem set scores will be dropped. Instead, there are extra credit points to be earned via lab exercises.

4.3 Lab exercises

GSI-led labs are designed to both reinforce and explore further programming concepts and topics discussed during the lectures. Labs require active participation to be effective. Discussion, Q&A, and problem-solving activities will predominate.

Weekly labs will feature an exercise worth 20 points of extra credit. The points are earned by submitting code or a related deliverable. Lab exercises will be released on Tuesday and must be completed and submitted no later than the following Monday evening at 11:59 PM Eastern time. A maximum of 200 extra credit points can be earned across the semester.

4.4 In-class midterm exam

An in-class, “open book, open network” midterm exam will be held on the Thursday of midterm week. The midterm exam is worth 1000 points. More details regarding the midterm exam will be provided in class.
If the Services for Students with Disabilities (SSD) office has issued you a test-related accommodation please inform Anthony at least two weeks before the midterm date.

### 4.5 Final assignment

The weekly problem sets are designed to prepare you for submitting a final assignment that will involve writing a Python program designed to combine, filter, and clean data sourced from several data sets and a Web API. The final project is worth 1500 points. See the [schedule](#) for release and due dates.

### 5.0 Course points and grading

Problems sets will be scored using a Python auto grader. Other assignments may use auto graders and/or be scored manually. Instructions on how to submit assignments will be provided. Scores will be posted on Canvas.

If you have a concern about a score on any assignment or desire a score explanation or re-grade, please contact your GSI. If warranted your concern will be escalated to Anthony.

### 5.1 Course points

<table>
<thead>
<tr>
<th>Week(s)</th>
<th>Assignment</th>
<th>Points</th>
<th>Weight</th>
<th>Running Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Problem set 01</td>
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<td>100</td>
</tr>
<tr>
<td>03</td>
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<td>100</td>
<td>.025</td>
<td>500</td>
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<tr>
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<td>1500</td>
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<tr>
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<td>Problem set 07</td>
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<td>Problem set 09</td>
<td>150</td>
<td>.0375</td>
<td>1800</td>
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<td>12</td>
<td>Problem set 10</td>
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<td>.05</td>
<td>2000</td>
</tr>
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5.2 Extra credit points

<table>
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<th>Week</th>
<th>Assignment</th>
<th>Points</th>
<th>Running Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Lab 10</td>
<td>20</td>
<td>200</td>
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5.3 Late policy

Late assignments will be penalized 10% of the total points to be earned each day the submission is overdue. An assignment that is submitted > three (3) calendar days after the due date will receive a score of zero (0).

5.4 Final grade

Total points earned in the course will translate to the following letter grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>3880</td>
<td>97%</td>
</tr>
<tr>
<td>A</td>
<td>3720</td>
<td>93%</td>
</tr>
<tr>
<td>A-</td>
<td>3600</td>
<td>90%</td>
</tr>
<tr>
<td>B+</td>
<td>3480</td>
<td>87%</td>
</tr>
</tbody>
</table>
A+ final grades are only awarded to students who earn at least 3880 points by completing all required assignments. Total points earned that fall between any of the points/letter grade thresholds listed above will result in the lower of the two letter grades being awarded. Example: 3700 points earned translates to an A- not an A.

Recall that SI 506 is a required course for UMSI students. As such, a grade of D+ or less in the course will not count for degree credit and SI 506 will need to be repeated. See the MHI and MSI Student handbook’s “Grades and Grading Policy” for a more complete description of letter grades and their interpretation.

6.0 Religious holidays

The Office of the Provost maintains a list of religious holidays that may pose a conflict with the 2010-2020 academic calendar.

Although the University of Michigan, as an institution, does not observe religious holidays, it has long been the University’s policy that every reasonable effort should be made to help students avoid negative academic consequences when their religious obligations conflict with academic requirements. Absence from classes or examinations for religious reasons does not relieve students from responsibility for any part of the course work required during the period of absence. Students who expect to miss classes, examinations, or other assignments as a consequence of their religious observance shall be provided with a reasonable alternative opportunity to complete such academic responsibilities. It is the obligation of students to provide faculty with reasonable notice of the dates of religious holidays on which they will be absent.
Such notice must be given by the drop/add deadline of the given term. Students who are absent on days of examinations or class assignments shall be offered an opportunity to make up the work, without penalty, unless it can be demonstrated that a make-up opportunity would interfere unreasonably with the delivery of the course. Should disagreement arise over any aspect of this policy, the parties involved should contact the Department Chair, the Dean of the School, or the Ombudsperson. Final appeals will be resolved by the Provost.

7.0 Academic integrity and misconduct

7.1 Collaboration

UMSI strongly encourages collaboration while working on some assignments, such as homework problems and interpreting reading assignments as a general practice. Active learning is effective. Collaboration with other students in the course will be especially valuable in summarizing the reading materials and picking out the key concepts. You must, however, write your homework submission on your own, in your own words, before turning it in. If you worked with someone on the homework before writing it, you must list any and all collaborators on your written submission.

If you are a more advanced student and are willing to help other students, please feel free to do so. Just remember that your goal is to help teach the material to the student receiving the help and not do their work for them.

For example, when working on SI 506 problem sets, add a comment in your Python code when citing a fellow classmate’s assistance. Reference each student collaborator using their uniqname:

```python
def read_json(filepath):
    """ Decode a JSON Document. """
    # Worked on code block with nantin and ssciolla.
    with open(filepath, 'r', encoding='utf-8') as file_obj:
        data = json.load(file_obj)
    return data
```
Each course and each instructor may place restrictions on collaboration for any or all assignments. Read the instructions careful and request clarification about collaboration when in doubt. Collaboration is almost always forbidden for take-home and in class exams.

### 7.2 Plagiarism

All submitted work must be your own original work unless otherwise specified in a specific assignment. Asking someone to contribute to or complete your work or copying work of another student is a form of academic misconduct (cheating). The use of ideas or expressions from others without attribution is another form of academic misconduct (plagiarism). Any violation of the School’s policy on Academic and Professional Integrity (found in the student handbooks) will result in serious penalties. These range from failing an assignment, to failing a course, to being expelled from the program. Violations of academic and professional integrity will be reported to the UMSI academic integrity officer. Consequences impacting assignment or course grades are determined by the faculty instructor; additional sanctions may be imposed by the Senior Associate Dean for Academic Affairs.

### 8.0 Accommodations for students with disabilities

If you think you need an accommodation for a disability, please inform Anthony at your earliest convenience. Some aspects of this course, including the assignments, in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make Anthony aware of your needs, he can work with the Services for Students with Disabilities (SSD) office to help determine appropriate academic accommodations. The SSD office (734-763-3000) [http://ssd.umich.edu](http://ssd.umich.edu) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

### 9.0 Student mental health and well-being

The University of Michigan is committed to advancing the mental health and well-being of its students, while acknowledging that a variety of issues, such as strained relationships, increased anxiety, alcohol/drug problems, and depression, directly impacts students’ academic performance. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS).
at (734) 764-8312 and https://caps.umich.edu/ during and after hours, on weekends and holidays or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (732) 764-8320 and https://www.uhs.umich.edu/mentalhealthsvcs, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources. For a more comprehensive listing of the broad range of mental health services available on campus, please visit: http://umich.edu/~mhealth/.

10.0 COVID-19 statement

For the safety of all students, faculty, and staff on campus, it is important for each of us to be mindful of safety measures that have been put in place for our protection. By returning to campus, you have acknowledged your responsibility for protecting the collective health of our community. Your participation in this course on an in-person basis is conditional upon your adherence to all safety measures mandated by the State of Michigan and the University, including maintaining physical distancing of six feet from others, and properly wearing a face covering in class. Other applicable safety measures may be described in the Wolverine Culture of Care and the University’s Face Covering Policy for COVID-19. Your ability to participate in this course in-person as well as your grade may be impacted by failure to comply with campus safety measures. Individuals seeking to request an accommodation related to the face covering requirement under the Americans with Disabilities Act should contact the Office for Institutional Equity. If you are unable or unwilling to adhere to these safety measures while in a face-to-face class setting, you will be required to participate on a remote basis (if available) or to disenroll from the class. I also encourage you to review the Statement of Students Rights and Responsibilities, which includes a COVID-related Statement Addendum.