

**WAYLAND BAPTIST UNIVERSITY**  
**WBUOnline**  
**SCHOOL OF MATHEMATICS AND SCIENCES**

**Wayland Mission Statement:**

Wayland Baptist University exists to educate students in an academically challenging, learning-focused, and distinctively Christian environment for professional success and service to God and humankind.

**Course Title and Number:**

CSCI 4316-VC01; SPECIAL TOPICS – DATA SCIENCE TOOLS

**Term:**

SPRING-1 2023 – 8 Week Term

**Name of Instructor:**

Dr. Scott R. Franklin, Professor of Mathematics and Computer Science

**Office Phone Number and WBU Email Address:**

806-291-1130; [franklins@wbu.edu](mailto:franklins@wbu.edu); Cell/Text: 806-252-3855

**Office Hours, Building, and Location:**

There will be optional zoom meetings scheduled (1 hour each x 2) each week for students to hear from the professor and where questions may be asked and answered. The times for these will be posted in Blackboard. Also meetings by appointment are available, online via Zoom. Email your professor to request a time. Time is limited so there is no guaranteed availability outside of the zoom meetings mentioned above (but I will do my best). The Office Hours will be recorded and posted for viewing in Blackboard.

**Class Meeting Time and Location:**

Online (Asynchronous)

**Catalog Description:**

Survey of software and development tools used in Machine Learning (ML), Artificial Intelligence, and Data Science (DS). The course introduces common free open-source software (FOSS) used by ML and DS practitioners to prepare students for further training in the underlying ML algorithms.

**Prerequisites:** CSCI 1312 and some Python programming experience

**Required Textbook and Resources:**

No textbook required. All required text and software resources are free and open-source and will be made available through Blackboard

You must have access to a computer on which you can install the development software. In almost all parts of this course, there are free cloud-based options that come with caveats, but will generally get the job done.

**Course Outcome Competencies:**

Upon completion of this course the student should be able to:

- Set up and use Jupyter-based notebooks for data analytics.
- Load and analyze datasets and dataframes, and implement common tools for working with them.
- Model relationships with network/graph structures, and implement common tools for working with them.
- Perform text processing, and implement common tools for Natural Language Processing (NLP).
- Train and predict using Machine Learning (ML) models with Scikit-learn, and have informed discussions regarding more powerful Deep Learning (DL) frameworks like TensorFlow and PyTorch.

**Attendance Requirements:**

Students are expected to participate in all required instructional activities in their courses. In this course, your weekly assignments will be the measure of attendance. Any week in which a student does not complete any work, the student will be considered "absent." Any student absent 25% or more (i.e., non-participatory during 3 or more weeks of the term) will receive an F for the course.

**Statement on Plagiarism and Academic Dishonesty:**

Wayland Baptist University observes a zero tolerance policy regarding academic dishonesty. Per university policy as described in the academic catalog, all cases of academic dishonesty will be reported and second offenses will result in suspension from the university.

**Disability Statement:**

In compliance with the Americans with Disabilities Act of 1990 (ADA), it is the policy of Wayland Baptist University that no otherwise qualified person with a disability be excluded from participation in, be denied the benefits of, or be subject to discrimination under any educational program or activity in the university. The Coordinator of Counseling Services serves as the coordinator of students with a disability and should be contacted concerning accommodation requests at (806) 291-3765. Documentation of a disability must accompany any request for accommodations.

**Course Requirements and Grading Criteria:**

TBD

A: 90 – 100 B: 80 – 89 C: 70 – 79 D: 60 – 69 F: Below 60

Students shall have protection through orderly procedures against prejudices or capricious academic evaluation. A student who believes that he or she has not been held to realistic academic standards, just evaluation procedures, or appropriate grading, may appeal the final grade given in the course by using the student grade appeal process described in the Academic Catalog. Appeals may not be made for advanced placement examinations or course bypass examinations. Appeals are limited to the final course grade, which may be upheld, raised, or lowered at any stage of the appeal process. Any recommendation to lower a course grade must be submitted through the Executive Vice President/Provost to the Faculty Assembly Grade Appeals Committee for review and approval. The Faculty Assembly Grade Appeals Committee may instruct that the course grade be upheld, raised, or lowered to a more proper evaluation.

**Tentative Schedule**

Week 1: Course introduction and Prep

Week 2: Jupiter Notebooks

Week 3: Working with Data

Week 4: Networks and Graphs

Weeks 5-6: Natural Language Processing

Weeks 7-8: Intro to ML

**Academic Honesty:**

Disciplinary action for academic misconduct is the responsibility of the faculty member assigned to this course. The faculty member is charged with assessing the gravity of any case of academic dishonesty, and with giving sanctions to any student involved.

**Important Dates:**

Mon Jan 16	First Day of Class
Mon Jan 23	Last day to drop without record
Fri Feb 17	Last day to withdraw with "W"
Fri Mar 3	Last day to withdraw with a "WP/WF"
Sat Mar 11	Last Day of Class

This syllabus is only a plan. The teacher may modify the plan during the course. The requirements and grading criteria may be changed during the course if necessary.