



**ELEG 2331, Advanced Programming and Applications  
Spring, 2024**

**General Course Information**

Information Item	Information
<b>Instructor:</b>	Xishuang Dong
<b>Section # and CRN:</b>	ELEG 2331, P01, CRN: 24794
<b>Office Location:</b>	Room 342, New Engineering Building
<b>Office Phone:</b>	(936)261-9865
<b>Email Address:</b>	xidong@pvamu.edu
<b>Office Hours:</b>	MTR: 9:00am ~ 11:00am
<b>Mode of Instruction:</b>	Lecture
<b>Course Location:</b>	TR: New Electrical Engr Bldg 125
<b>Class Days &amp; Times:</b>	TR: 11:00AM ~ 12:20PM
<b>Catalog Description:</b>	ELEG 2331 – Advanced Programming and Applications. Credit 3 semester hours. Advanced software development with a focus on problem solving skills. Design, implementation, and testing of several large programs in a Unix/Linux environment using current technologies. Logic of algorithms, program looping, selection statements, functions, file inputs and outputs, functions and object-oriented programming, engineering applications and team projects.
<b>Prerequisites:</b>	ELEG 1301
<b>Co-requisites:</b>	None
<b>Required Text(s):</b>	“Introduction to Python for Engineers and Scientists: Open Source Solutions for Numerical Computation”, Authors: Sandeep Nagar, Publisher: Apress, 2017. ISBN: 978-1484232033
<b>Recommended Text(s):</b>	“Introduction to Computation and Programming Using Python: With Application to Understanding Data Second Edition.” Author: Gutttag, John. Publisher: MIT Press, 2016. ISBN: 9780262529624.

General Course Information Table

**Student Learning Outcomes:**

<b>Upon successful completion of this course, students will be able to:</b>
1. Develop high-level computer language programming skills to solve engineering problems by effectively using logic of algorithms, flowcharts, program looping and conditional statements;
2. Enhance the ability to use open-source library to solve complex engineering problems and visualize computing procedure and results;

Student Learning Outcomes Table

## Major Course Requirements

### Method of Determining Final Course Grade

Course Grade Requirement	Value	Total
1. Exams (3 exams)	30	30
2. Homework	10	10
3. Project	20	20
4. Attendance	10	10
5. Final Exam (Comprehensive)	30	30
<b>Total:</b>	<b>100</b>	<b>100</b>

Course Grade Requirement Table

### Grading Criteria and Conversion:

A = 90% or better

B = 80 – 89 %

C = 70 – 79 %

D = 60 – 69 %

F = Less than 60%

If a student has stopped attending the course (i.e. “stopped out”) at any point after the first day of class but did not officially withdraw from the course and has missed assignments and exams and performed below the grade level of a D, a grade of FN (failed-non attendance) will be assigned for the final course grade to ensure compliance with the federal Title IV financial aid regulations. In contrast, if the student has completed all assignments and exams, but performed below the grade level of a D, a grade of F will be assigned for the final course grade.

## Course Procedures or Additional Instructor Policies

### Taskstream

Taskstream is a tool that Prairie View A&M University uses for assessment purposes. One of your assignments may be required to be submitted as an "artifact," an item of coursework that serves as evidence that course objectives are met. If applicable, more information will be provided during the semester by your department, but for general information, you can visit Taskstream via the link in eCourses.

### Submission of Assignments:

Projects and other assignments will be assigned to test the ability of solving problems with the knowledge learned from this course. Students will be required to turn in or demonstrate the projects. Projects must be handed in on time. Late projects will not be accepted unless due to acceptable reasons (as defined by University policy). Due to the accreditation requirements, students are required to submit their works through eCourses:

<http://ecourses.pvamu.edu>

### Formatting Documents:

Microsoft Word is the standard word processing tool used at PVAMU. If you're using other word processors, be sure to use the “save as” tool and save the document in either the Microsoft Word, Rich-Text, or plain text format.

### Exam Policy:

Exams are close-book and close-notes. Every student must take all exams on the assigned dates. Any student who misses an exam without a valid excuse will automatically receive zero for that exam. Make-up exams will be administered in accordance with university policy.

### Electronic Devices Policy:

Cell phones are restricted during class. Cell phones must be turned off during the lectures and must not be used during exams. If your cell phone rings during class, you may be asked to leave. Other devices (computers, recorders, etc.) may be allowed, but you must ask the instructor before you use them during class.

<b>16 WEEK CALENDAR (Tentative)</b>	
<b>Week One:</b> Topic	Introduction to Advanced Programming
Chapter (s):	
Assignments (s):	
<b>Week Two:</b> Topic	Data Types
Chapter (s):	
Assignments (s):	
<b>Week Three:</b> Topic	Operators
Chapter (s):	
Assignments (s):	
<b>Week Four:</b> Topic	Review and Exam I
Chapter (s):	
Assignments (s):	
<b>Week Five:</b> Topic	Arrays I
Chapter (s):	
Assignments (s):	
<b>Week Six:</b> Topic	Arrays II
Chapter (s):	
Assignments (s):	
<b>Week Seven:</b> Topic	Plotting
Chapter (s):	
Assignments (s):	
<b>Week Eight:</b> Topic	Midterm Review
Chapter (s):	
Assignments (s):	
	<b>Mid-Term Exam</b>
<b>Week Nine:</b> Topic	Selection Statement
Chapter (s):	
Assignments (s):	
<b>Week Ten:</b> Topic	Function and Loops I
Chapter (s):	
Assignments (s):	
<b>Week Eleven:</b> Topic	Function and Loops II
Chapter (s):	
Assignments (s):	
<b>Week Twelve:</b> Topic	Review and Exam III
Chapter (s):	
Assignments (s):	
<b>Week Thirteen:</b> Topic	Object-Oriented Programming
Chapter (s):	
Assignments (s):	
<b>Week Fourteen:</b> Topic	Engineering Application: Search
Chapter (s):	
Assignments (s):	
<b>Week Fifteen:</b> Topic	Final Review
Chapter (s):	
Assignments (s):	
	<b>Week Sixteen- Final Exam</b>

## **Student Support and Success**

### **John B. Coleman Library**

The library and its partners have as their mission to provide resources and instructional material in support of the evolving curriculum, as a partner in Prairie View A&M University's mission of teaching, research, and service and to support the University's core values of access and quality, diversity, leadership, relevance, and social responsibility through emphasis on ten key areas of service. It maintains library collections and access both on campus, online, and through local agreements to further the educational goals of students and faculty. Phone: 936-261-1500; Website: [J. B. Coleman Library](#).

### **Academic Advising Services**

Academic Advising Services offers students a variety of services that contributes to student success and leads towards graduation. We assist students with understanding university policies and procedures that affect academic progress. We support the early alert program to help students get connected to success early in the semester. We help refer students to the appropriate academic support services when the student is unsure of the best resource for their needs. Some students are supported by faculty advisors in their respective colleges. Your faculty advisor can be identified in PantherTracks. Advisors with Academic Advising Services are available to all students. We are located across campus. You can find your advisor's location by academic major at the [Academic Advising Website](#), Phone: 936-261-5911.

### **The University Tutoring Center**

The University Tutoring Center (UTC) offers free tutoring and academic support to all registered PVAMU students. The mission of the UTC is to help provide a solid academic foundation that enables students to become confident, capable, independent learners. Competent and caring staff and peer tutors guide students in identifying, acquiring, and enhancing the knowledge, skills, and attitudes needed to reach their desired goals. Tutoring and academic support is offered face-to-face in the [UTC, in virtual face-to-face sessions](#), and through [online sessions at PVPlace](#). Other support services available for students include Supplemental Instruction, Study Break, Academic Success Workshops, and Algebra Study Jam. Location: J. B. Coleman Library, Rm. 307; Phone: 936-261-1561; Email: [pvtutoring@pvamu.edu](mailto:pvtutoring@pvamu.edu); Website: [University Tutoring Center](#).

### **The Writing Center**

The Writing Center provides well-trained peer tutors that assist students with writing assignments at any stage of the writing process. Tutors help students with various writing tasks from understanding assignments, brainstorming, drafting, revising, editing, researching, and integrating sources. Students have free access to Grammarly online writing assistance. Grammarly is an automated proofreading and plagiarism detection tool. Student must register for Grammarly by using their student email address. In addition, students have access to face-to-face as well as virtual tutoring services either asynchronously via email or synchronously via Zoom. Location: J. B. Coleman Library, Rm. 209; Phone: 936-261-3724; Website: [The Writing Center](#); [Grammarly Registration](#).

### **Academic Early Alert**

Academic Early Alert is a proactive system of communication and collaboration between faculty, academic advisors, and PVAMU students that is designed to support student success by promptly identifying issues and allowing for intervention. Academic Early Alert helps students by providing a central location to schedule advising appointments, view advisor contact information, and request assistance. Students who recognize that they have a problem that is negatively affecting their academic performance or ability to continue school may self-refer an Academic Early Alert. To do so, students will log in to PVPlace and click on Academic Early Alert on the left sidebar. Phone: 936-261-5902; Website: [Academic Early Alert](#).

### **Student Counseling Services**

The Student Counseling Services unit offers a range of services and programs to assist students in maximizing their potential for success: short-term individual, couples, and group counseling, as well as crisis intervention, outreach, consultation, and referral services. The staff is licensed by the State of Texas and provides assistance to students who are dealing with academic skills concerns, situational crises, adjustment problems, and emotional difficulties. Information shared with the staff is treated confidentially and in accordance with Texas State Law. Location: Hobart Taylor, 2<sup>nd</sup> floor; Phone: 936-261-3564; Website: [Student Counseling Services](#).

### **Office of Testing Services**

Testing Services serves to create opportunities by offering suite of exams that aid in the students' academic and professional success. Currently we administer entrance (HESI A2), college readiness (TSI assessment), Prior Learning (CLEP, DSST), and proctored exams. Location: Wilhelmina Delco, 3<sup>rd</sup> Floor, Rm. 305; Phone: 936-261-3627; Email: [aetesting@pvamu.edu](mailto:aetesting@pvamu.edu); Website: [Testing Services](#).

### **Office of Diagnostic Testing and Disability Services**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, contact the Office of Disability Services. As a federally-mandated educational support unit, the Office of Disability Services serves as the repository for confidential disability files for faculty, staff, and students. For persons with a disability, the Office develops individualized ADA letters of request for accommodations. Other services include: learning style inventories, awareness workshops, accessibility pathways, webinars, computer laboratory with adapted hardware and software, adapted furniture, proctoring of non-standardized test administrations, ASL interpreters, ALDs, digital recorders, livescribe, and a comprehensive referral network across campus and the broader community. Location: Hobart Taylor, Rm. 1D128; Phone: 936-261-3583; Website: [Disability Services](#).

### **Center for Instructional Innovation and Technology Services (CIITS)**

Distance Learning, also referred to as Distance Education, is the employment of alternative instructional delivery methods to extend programs and services to persons unable to attend college in the traditional manner. The Center for Instructional Innovation and Technology Services (CIITS) supports student learning through online, hybrid, web-assisted and 2-way video course delivery. For more details and contact information, visit: [CIITS Student Webpage](#); Phone: 936-261-3283.

### **Veteran Affairs**

Veteran Services works with student veterans, current military and military dependents to support their transition to the college environment and continued persistence to graduation. The Office coordinates and certifies benefits for both the G.I. Bill and the Texas Hazlewood Act. Location: Evans Hall, Rm. 102; Phone: 936-261-3563; Website: [Veteran Affairs](#).

### **Office for Student Engagement**

The Office for Student Engagement delivers comprehensive programs and services designed to meet the co-curricular needs of students. The Office implements inclusive and accessible programs and services that enhance student development through exposure to and participation in diverse and relevant social, cultural, intellectual, recreational, community service, leadership development and campus governance. Location: Memorial Student Center, Rm. 221; Phone: 936-261-1340; Website: [Office for Student Engagement](#).

### **Career Services**

Career Services supports students through professional development, career readiness, and placement and employment assistance. The Office provides one-on-one career coaching, interview preparation, resume and letter writing, and career exploration workshops and seminars. Services are provided for students at the Northwest Houston Center and College of Nursing in the Medical Center twice a month or on a requested basis. Distance Learning students are encouraged to visit the Career Services website for information regarding services provided. Location: Anderson Hall, 2<sup>nd</sup> floor; Phone: 936-261-3570; Website: [Career Services](#).

## **University Rules and Procedures**

### **Academic Misconduct (See Student Planner)**

You are expected to practice academic honesty in every aspect of this course and all other courses. Make sure you are familiar with your Student Planner, especially the section on academic misconduct (see *University Administrative Guidelines on Academic Integrity*). Students who engage in academic misconduct are subject to university disciplinary procedures. As listed in the PVAMU Undergraduate Catalog, Graduate Catalog, and the Student Planner, the following are examples of prohibited conduct. This list is not designed to be all-inclusive or exhaustive. In addition to academic sanctions, any student found to have committed or to have attempted to commit the following academic misconduct may also be subject to disciplinary review and action as outlined in the PVAMU Student Planner.

## Forms of Academic Dishonesty:

1. Cheating: Deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not learned, giving or receiving aid unauthorized by the instructor on assignments or examinations. Examples: unauthorized use of notes for a test; using a "cheat sheet" on a quiz or exam; any alteration made on a graded test or exam which is then resubmitted to the teacher.
2. Plagiarism: Careless or deliberate use of the work or the ideas of another; representation of another's work, words, ideas, or data as your own without permission or appropriate acknowledgment. Examples: copying another's paper or answers, failure to identify information or essays from the Internet and submitting or representing it as your own; submitting an assignment which has been partially or wholly done by another and claiming it as yours; not properly acknowledging a source which has been summarized or paraphrased in your work; failure to acknowledge the use of another's words with quotation marks.
3. Multiple Submission: Submission of work from one course to satisfy a requirement in another course without explicit permission. Example: using a paper prepared and graded for credit in one course to fulfill a requirement and receive credit in a different course.
4. Conspiracy: Agreeing with one or more persons to commit an act of academic/scholastic dishonesty.
5. Fabrication of Information/Forgery: Use or submission of contrived, invented, forged, or altered information in any assignment, laboratory exercise, or test; tampering with or production of a counterfeit document, particularly documents which make up the student's academic record. Examples: making up a source or citing nonexistent publication or article; representing made up data as real for an experiment in a science laboratory class; forging a change of grade or student withdrawal record; falsifying any document related to a student academic exercise.

## Nonacademic Misconduct (See Student Planner)

The University respects the rights of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise. Campus behavior that interferes with either (1) the instructor's ability to conduct the class, or (2) the ability of students to benefit from the instructional program, or (3) the rights of others will not be tolerated. An individual engaging in such disruptive behavior may be subject to disciplinary action. Such incidents will be adjudicated by the Office for Student Conduct under nonacademic procedures.

## Sexual Misconduct

Sexual harassment of students and employees at Prairie View A&M University is unacceptable and will not be tolerated. Any member of the university community violating the university's sexual harassment policy will be subject to disciplinary action. In accordance with the Texas A&M University System guidelines, your instructor is obligated to report to the Office of Title IX Compliance ([titleixteam@pvamu.edu](mailto:titleixteam@pvamu.edu)) any instance of sexual misconduct involving a student, which includes sexual assault, stalking, dating violence, domestic violence, and sexual harassment, about which the instructor becomes aware during this course through writing, discussion, or personal disclosure. The faculty and staff of PVAMU actively strive to provide a learning, working, and living environment that promotes respect that is free from sexual misconduct, discrimination, and all forms of violence. If students, faculty, or staff would like assistance, or have questions, they may contact the Title IX Coordinator at 936-261-2144 or [titleixteam@pvamu.edu](mailto:titleixteam@pvamu.edu). More information can be found at the [Title IX Webpage](#) including confidential resources available on campus.

## Protections and Accommodations for Pregnant and Parenting Students

The U.S. Department of Education's Office for Civil Rights (OCR) enforces, among other statutes, Title IX of the Education Amendments of 1972. Title IX protects people from discrimination based on sex, sexual orientation, and gender identity in education programs or activities that receive federal financial assistance. This protection includes those who may be pregnant and parenting. Title IX states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance." Students seeking accommodations related to pregnancy or parenting should contact the Office of Title IX for information, resources, and support at [titleixteam@pvamu.edu](mailto:titleixteam@pvamu.edu). Additional information and/or support may be provided by the Office of Disability Services or the Office of the Dean of Students.

## Non-Discrimination Statement

Prairie View A&M University does not discriminate on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation or gender identity in its programs and activities. The University is committed to supporting students and complying with the Texas A&M University System non-



discrimination policy. It seeks to establish an environment that is free of bias, discrimination, and harassment. If you experience an incident of discrimination or harassment, we encourage you to report it. If you would like to speak with someone who may be able to afford you privacy or confidentiality, there are individuals who can meet with you. The Director of Equal Opportunity & Diversity has been designated to handle inquiries regarding the non-discrimination policies, and can be reached at Harrington Science Building, Suite 109 or by phone 936-261-1744 or 1792.

### **Class Attendance Policy (See Catalog for Full Attendance Policy)**

Prairie View A&M University requires regular class attendance. Attending all classes supports full academic development of each learner whether classes are taught with the instructor physically present or via distance learning technologies such as interactive video and/or internet. Excessive absenteeism, whether excused or unexcused, may result in a student's course grade being reduced or in assignment of a grade of "F". Absences are accumulated beginning with the first day of class during regular semesters and summer terms. Each faculty member will include the University's attendance policy in each course syllabus.

### **Student Academic Appeals Process**

Authority and responsibility for assigning grades to students rests with the faculty. However, in those instances where students believe that miscommunication, errors, or unfairness of any kind may have adversely affected the instructor's assessment of their academic performance, the student has a right to appeal by the procedure listed in the University Catalog and by doing so within thirty days of receiving the grade or experiencing any other problematic academic event that prompted the complaint. Students can file Academic Complaints and/or Grade Appeals at this [webpage](#).

### **Technical Considerations**

#### **Minimum Recommended Hardware and Software:**

- Intel PC or Laptop with Windows 10 or later version; Mac with OS High Sierra\*
- Smartphone or iPad/Tablet with Wi-Fi\*
- High speed Internet access
- 8 GB Memory
- Hard drive with 320 GB storage space
- 15" monitor, 800x600, color or 16 bit
- Sound card w/speakers
- Microphone and recording software
- Keyboard & mouse
- Most current version of Google Chrome, Safari or Firefox

\*Smartphone, Google Chrome books and Android tablets may not be supported. iPads are the only tablets supported.

**Note:** Be sure to enable Java & pop-ups in the Web browser preferences

#### **Participants should have a basic proficiency of the following computer skills:**

- Sending and receiving emails
- A working knowledge of the Internet
- Microsoft Word (or a program convertible to Word)
- Acrobat PDF Reader
- Windows or Mac OS
- Video conferencing software

#### **Netiquette (online etiquette)**

Students are expected to participate in all discussions and virtual classroom chats as directed. Students are to be respectful and courteous to others on discussions boards. Foul or abusive language will not be tolerated. Do not use ALL CAPS for communicating to others AS IT CAN BE INTERPRETED AS YELLING. Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you." Limit and possibly avoid the use of emoticons. Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and the message might be taken seriously or sound offensive.

#### **Video Conferencing Etiquette**

When using Zoom, WebEx or other video conferencing tools, confirm the visible area is tidy, clear of background

clutter, inappropriate or offensive posters, and other distractions. Ensure you dress appropriately and avoid using high traffic or noisy areas. Stay muted when you are not speaking and avoid eating/drinking during session. Before class session begins, test audio, video and lighting to alleviate technology issues.

### **Technical Support**

Students should go to the [Password Reset Tool](#) if they have password issues. The page will provide instructions for resetting passwords and contact information if login issues persist. For other technical questions regarding eCourses, call the Center for Instructional Innovation and Technology Services (CIITS) at 936-261-3283 or email [ciits@pvamu.edu](mailto:ciits@pvamu.edu).

### **Communication Expectations and Standards**

Emails or discussion postings will receive a response from the instructor, usually in less than 48 hours. Urgent emails should be marked as such. Check regularly for responses.

### **Discussion Requirement**

Online courses often require minimal to no face-to-face meetings. However, conversations about the readings, lectures, materials, and other aspects of the course can take place in a seminar fashion. This will be accomplished by the use of the discussion board. The exact use of discussion will be determined by the instructor.

**It is strongly suggested** that students type their discussion postings in a word processing application such as Word and save it to their PC or a removable drive before posting to the discussion board. This is important for two reasons: 1) If for some reason your discussion responses are lost in your online course, you will have another copy; 2) Grammatical errors can be greatly minimized by the use of the spell-and-grammar check functions in word processing applications. Once the post(s) have been typed and corrected in the word processing application, copy and paste to the discussion board.

### **COVID-19 Campus Safety Measures [NOTE: Delete this section when the COVID-19 pandemic is over]**

To promote public safety and protect students, faculty, and staff during the coronavirus pandemic, PVAMU has adopted policies and practices to limit virus transmission.

- **Self-reporting** – Students who test positive for COVID-19 are required to report their positive test results within 48 hours using the [PVAMU Self-Reporting Form](#). Proof of off-campus and self-administered home test results must be sent to [covid-19@pvamu.edu](mailto:covid-19@pvamu.edu). Proof for self-administered home test is a picture of the test with a photo ID in the same photo.
- **Self-monitoring** – Students should follow public health guidance to help slow the spread of the virus, including being vaccinated. Students who have a fever or exhibit symptoms of COVID-19 should not participate in face-to-face instruction.
- **Face Coverings** – Face coverings (KN-95, surgical mask, etc.) are highly recommended in classrooms, teaching laboratories, common spaces such as lobbies and hallways, public study spaces, libraries, academic resource and support offices, and outdoor spaces where 6 feet of physical distancing is challenging to maintain reliably.
- **Physical Distancing** – Physical distancing should be maintained between students, instructors, and others in course and course-related activities where possible.
- **Personal Illness and Quarantine** – Students required to quarantine are to participate in courses and course-related activities remotely and must not attend face-to-face course activities. Communication with the student's instructor for remote support will take place by the Office of the Assistant Vice President for Academic Engagement and Success. Students under quarantine are expected to participate in courses and complete graded work unless they have symptoms that are too severe to participate in course activities. Students experiencing personal injury or illness that is too severe for the student to attend class may qualify for an excused absence. To receive an excused absence, students must provide appropriate documentation to the Office for Student Conduct, [studentconduct@pvamu.edu](mailto:studentconduct@pvamu.edu).
- **Questions** – For answers regarding COVID-19 policies and/or procedures, students should refer to [www.pvamu.edu/coronavirus](http://www.pvamu.edu/coronavirus) or email [covid-19@pvamu.edu](mailto:covid-19@pvamu.edu).