# Kennesaw State University Department of Information Technology

**IT 4773 Machine Learning for Enterprise Applications**

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| **Instructor** |  |
| **Email** |  |
| **Office** |  |
| **Office Hours** |  |
| **Credit Hours:** | 3-0-3 |
| **Pre- requisites:** | Grade of C or better in IT3703 Introduction to Data Analytics and Technologies |
| **Textbook:** | None  Instructor will design learning materials |
| **Course Description:** | This course covers enterprise applications of machine learning on data analytics.  Topics span the complete life cycle of data analytics from envisioning the problem, identifying proper data, selecting suitable machine learning methods, evaluating modeling performance, and deploying the results to improve decision-making. |
| **Learning Outcomes:** | The student will be able to:   1. explain the concepts of supervised and unsupervised learning 2. explain the concepts of how machine learning fits in the organization/enterprise and leads to competitive advantages. 3. Perform data analytics using supervised and unsupervised learning. 4. Evaluate the performance of machine learning models on data analysis. |
| **Weekly work** | |  |  | | --- | --- | | Week | Learning Module | | 1 | Intro to Machine Learning | | 2 | Intro to Google Colab | | 3 | Developing a complete machine learning project | | 4 | Decision Tree and Random Forest | | 5 | Logistic Regression, Perceptron and Neural Network | | 6 | Support Vector Machine | | 7 | Clustering Analysis | | 8 | Enterprise applications of Machine Learning | | 9 | Retail forecasting based on time series data | | 10 | Machine Learning for predicting hospital length of stay | | 11 | Predictive maintenance | |

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|  | |  |  | | --- | --- | | 12 | Machine Learning for IoT | | 13 & 14 | Course project development | | 15 | Project presentation | |
| **Assessment:** | Quizzes 20%  Assignments 30%  Course Project 30%  Discussion 20%  Total 100%  \*\*\*Detailed grading criteria are available in D2L for how Discussions will be graded.\*\*\* |
| **Grade** | A 90% - 100%  B 80% - 89% |
| **Evaluation:** | C 70% - 79% |
|  | D 60% - 69% |
|  | F 0% - 59% |
| **Class Format:** | The class will be hybrid or online |
| **Attendance:** | Students are required to follow weekly study guide to study all the provided course materials including lectures and reading materials, and work on quizzes, assignments and projects. |
| **Assignment Grading Policy:** | Successfully completed assignments, quizzes, projects and exams must satisfy their requirements outlined in the D2l module. The grade depends on the quality of the submission.  All work submitted is individual. For all assignments, if a student consults any resource (other than the text and class notes) including another individual, this consultation must be documented on the submission.  This documentation must include what (or who) was consulted and what information was obtained. Copying or plagiarizing from another source or failure to provide  this documentation will be considered a violation of the Student Code of Conduct. Due dates for submissions will be specified on the specific assignments Submissions will be accepted up to 24 hours late for 50% credit.  Submissions submitted more than 24 hours late will not be accepted for credit. |
| **Email Policy:** | Students must use only their official KSU email account since emails from other accounts may not successfully reach the instructor. |
| **Withdrawal Policy:** | **Withdrawal from Classes**  Students may withdraw from one or more courses up to one week prior to the last day of class. Summer withdrawal dates vary according to the part of term in which the student is enrolled. As of fall 2004, students will be allowed a maximum of eight total withdrawals if they enter KSU as a freshman.  Transfer students will be allowed one withdrawal per fifteen credit hours attempted, for a maximum of eight. Students who choose to pursue a second degree at KSU will be allowed two additional withdrawals. Students who entered KSU before fall 2004 will be allowed one withdrawal per fifteen credit hours attempted for a maximum of eight after the institution of this policy. As part of the consolidation process between Kennesaw State University and Southern Polytechnic State University, SPSU students will have eight withdrawals available beginning Fall Semester 2015.  Students who exceed the maximum number of withdrawals will receive a grade of "WF" for any subsequent withdrawals. To completely or partially withdraw from classes at KSU, a student must withdraw online through Owl Express. |

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|  | Students who officially withdraw from courses before the last day to withdraw without academic penalty will receive a grade of "W" and receive no credit. Students who officially withdraw after the last day to withdraw without academic penalty and before the last week of classes during the semester or who have exceeded the maximum number of withdrawals will receive a grade of "WF," which will be counted as an "F" in the calculation of their grade point average.  The only exceptions to these withdrawal regulations will be for instances involving unusual circumstances, which must be fully documented. Students may appeal to the Academic Standing Committee for consideration of unusual circumstances. Exact withdrawal dates are published in the official academic calendar. Students will receive refunds only when they withdraw from ALL their classes and only by the schedule outlined in the University System refund policy.  **Military Withdrawals**  Kennesaw State students who are called to active duty or who are deployed during the term may be eligible for a military withdrawal. Students who withdraw for military reasons will receive a WM grade in all courses and receive a refund of tuition and mandatory fees and a pro rata refund of other fees. Students who would like to withdraw for military reasons must submit a copy of their official orders to the Registrar's office. Military withdrawals do not count as part of the eight (maximum) allowed withdrawals. |
| **Classroom Behavior:** | Students are reminded to conduct themselves in accordance with the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Every KSU student is responsible for upholding the provision**.** Students who are in violation of KSU policy will be asked to leave the classroom and may be subject to disciplinary action by the University. |
| **Diversity Statement:** | All courses offered by the Computer Science department will adhere to the KSU policy that prohibits discrimination on the basis of race, religion, color, sex, age, disability, national origin, or sexual orientation. |
| **Enrollment Policy:** | Only those students who are enrolled in the class may attend lectures, receive assignments,  take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class. |
| **Electronic Devices:** | In order to minimize the level of distraction, all cellular phones and electronic devices must be on quiet mode during class meeting times. Students who wish to use a computer of other electronic device for note taking need prior approval of the instructor since key clicks and other noises can distract other students. Recording of lectures by any method requires prior approval of the instructor. Students using a laptop in class should not check their email, browse the web, or in other way detract from the focus of the class. |
| **Academic Integrity Statement:** | Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University  materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code  of Conduct’s minimum one semester suspension requirement.  Students are encouraged to study together and to work together on class assignments and lab exercises; however, the provisions of the STUDENT CONDUCT REGULATIONS, II. |

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|  | Academic Honesty, KSC Undergraduate Catalog will be strictly enforced in this class.  Frequently students will be provided with “take-home” exams or exercises. It is the  student’s responsibility to ensure they fully understand to what extent they may collaborate or discuss content with other students. No exam work may be performed with the assistance of others or outside material unless specifically instructed as permissible. If an exam or assignment  is designated “no outside assistance” this includes, but is not limited to, peers, books, publications, the Internet and the [WWW.](http://WWW/) If a student is instructed to provide citations for sources, proper  use of citation support is expected. |
| **Disruption of Campus Life Statement:** | It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the University disciplinary process*.* |
| **Faculty Availability Statement:** | KSU is proud of its reputation of faculty being available to students and colleagues outside of class time. To ensure this positive reputation continues, KSU expects its faculty to use a variety of means to be available for student questions or conferences as well as consultation with colleagues, including both in person and electronically. Departments must establish some minimum number of hours during each week that faculty should be available on campus beyond scheduled classes. The number of hours should reflect factors such as the number  and size of sections, the nature of those classes, and the number of advisees. Although faculties are not required to establish specific availability, they should be flexible in making appointments with students and colleagues. As a professional courtesy, faculty should reply to phone calls,  e-mails, and bulletin board questions from students in a timely manner. |
| **Reasonable Accommodati ons** | Students with qualifying disabilities under the Americans with Disabilities Act (ADA) and/or Section 504 of the Rehabilitation Act who require “reasonable accommodation(s)” to complete the course may request those from Office of Student Disability Services. Students requiring such accommodations are required to work with the University’s Office of Student Disability Services not individual faculty members or academic departments. A student anticipating a need for accommodation, must submit documentation requesting an accommodation in a timely fashion to permit time for a determination prior to submitting assignments or taking course quizzes or exams. Students may not request retroactive accommodation. Students should contact the office as  soon as possible in the term for which they are seeking accommodations. Student Disability Services is located in the Carmichael Student Center in Suite 267.  For more information, please call 470-578-2666 or visit the Student Disabilities Services websites at <http://sds.kennesaw.edu/> |
| **Student Privacy (FERPA)** | Students have certain rights to privacy.  The University’s online learning system and email system are designed to prevent unauthorized individuals from gaining access to sensitive information or information protected by federal or state law. We will communicate regarding course matters through the University’s designated technology learning system or Kennesaw state email system.  <http://registrar.kennesaw.edu/ferpastudents.php> |
| **KSU Sexual Misconduct Policy & Ethics Statement** | KSU will not tolerate sexual misconduct or sexually exploitative or harassing behavior of any kind. You are expected to respect religious, cultural, and gender differences. https://policy.kennesaw.edu/content/sexual-misconduct-policy |

**KSU Student Resources**

**For issues with technical difficulties, please contact the Student Helpdesk:**

* Email: [studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu)
* Call: 470-578-3555

# Additional Technology Resources

* Student Service Desk and Help Center: ["http:/](http://its.kennesaw.edu/students/index.html)/[its.kennesaw.edu/students/index.html"](http://its.kennesaw.edu/students/index.html)
* Browser Checker: "https://usg.desire2learn.com/d2l/tools/system\_check/systemcheck.asp?ou=6606"
* USG Desire2Learn: Help Center "https://d2lhelp.view.usg.edu/"
* ITS Documentation Center: "https://apps.kennesaw.edu/portal/prod/app\_uni\_cdoc\_publ/student/"
* Check Service Outages: ["http://status](http://status.usg.edu/).[usg.edu/"](http://status.usg.edu/)

# Academic Resources

* Maintenance Schedule ["http://ww](http://www.usg.edu/information_technology_services/learning_in_21st_century_georgia/georgiaview)w[.usg.edu/information\_technology\_services/learning\_in\_21st\_century\_georgia/georgiaview"](http://www.usg.edu/information_technology_services/learning_in_21st_century_georgia/georgiaview)
* Academic Tutoring Services ["http://www.kenne](http://www.kennesaw.edu/stu_dev/alp/academic.shtml)s[aw.edu/stu\_dev/alp/academic.shtml"](http://www.kennesaw.edu/stu_dev/alp/academic.shtml)
* Disability Resources ["http://www.kenne](http://www.kennesaw.edu/stu_dev/dsss/dsss.html)s[aw.edu/stu\_dev/dsss/dsss.html"](http://www.kennesaw.edu/stu_dev/dsss/dsss.html)
* ESL Study and Tutorial Center ["http:](http://www.kennesaw.edu/uc/esl/)/[/www.kennesaw.edu/uc/esl/](http://www.kennesaw.edu/uc/esl/)"
* Library ["http://ww](http://www.kennesaw.edu/library)w[.kennesaw.edu/library](http://www.kennesaw.edu/library)"
* The Writing Center ["ht](http://www.kennesaw.edu/writingcenter/index.php)t[p://www.kennesaw.edu/writingcenter/index.php"](http://www.kennesaw.edu/writingcenter/index.php)

# \* Student Support and Wellness Resources

* Career Services Center "https://careerctr.kennesaw.edu/"
* Counseling and Psychological Services ["http://sss](http://sss.kennesaw.edu/cps/).[kennesaw.edu/cps/"](http://sss.kennesaw.edu/cps/)
* Center for Health, Promotion and Wellness ["http://www.kenne](http://www.kennesaw.edu/col_hhs/wellness/)s[aw.edu/col\_hhs/wellness/"](http://www.kennesaw.edu/col_hhs/wellness/)
* Student Health Clinic K ["http://www](http://www.kennesaw.edu/col_hhs/hc/).[kennesaw.edu/col\_hhs/hc/"](http://www.kennesaw.edu/col_hhs/hc/)