JINDAL GLOBAL BUSINESS SCHOOL
INDIA'S FIRST MULTI-DISCIPLINARY GLOBAL BUSINESS SCHOOL

O.P. Jindal Global University
A Private University Promoting Public Service
NAAC Accreditation - 'A' Grade

Jindal Global Business School
Course Outline

Course Title	Machine Learning Foundation (powered by AWS Academy)
Core or Elective	Industry Elective
Program and Batch	MBA-2, IBM-4
Semester & Academic Year	Spring 2026
Credits	1.5
Discipline/Area	IS & Analytics
Name of the Faculty Member/Course Instructor	Sanlap Acharya
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Faculty Member's Open Office Day/s & Time	TBD

Introduction to the Course

Machine Learning Foundation introduces students to the concepts of Artificial Intelligence and machine learning on the AWS platform. By the end of this course, students will be able to select and apply machine learning services on AWS to resolve business problems. The students will be exposed to different tools within the AWS platform such as Amazon Sagemaker, Amazon Rekognition, Amazon Comprehend, and so on. They will also be able to label, build, train, and deploy a custom machine learning model through a guided, hands-on approach.

Course Learning Objectives
At the end of the course, students should be able to

CLO1: Implement machine learning pipelines using Amazon SageMaker

CLO2: Use managed Amazon services for forecasting

CLO3: Use managed Amazon services for computer vision

CLO4: Use managed Amazon services for natural language processing

Programme Competency Goals

MBA Programme Competency Goals (PCGs)		MBA Programme Learning Objectives (PLOs)
		Students will be able to
1	**Technological Agility:** Ability to adopt relevant technologies for better business decision making.	1. Understand relevant business technologies
		2. Understand future technologies in business domain
2	**Responsible Global Citizenship:** Ability to understand the interplay between local and global issues and to act with sensitivity towards ethical and social issues	3. Understand the interplay between local and global business issues
		4. Demonstrate sensitivity towards ethical issues
		5. Demonstrate sensitivity towards social issues
		6. Address societal issues
3	**Effective communication:** Ability to effectively exchange ideas and information	7. Present their ideas with clarity
		8. Prepare an organized and logical business document
		9. Use technology for effective communication
4	**Critical Thinking:** Ability to identify, analyze business problems and propose effective solutions	10. Identify main issues of business problems
		11. Examine information from different sources
		12. Draw inferences from analysis
		13. Evaluate alternatives
		14. Summarize and conclude
5	**Leadership:** Ability to take initiative, inspire and collaborate with others	15. Take initiative
		16. Contribute effectively in groups

PLO-PCG Assessments Mapping Matrix

Program Learning Objectives (PLOs)	**Program Competency Goals (PCGs)**	**Course Assessment Item**
This course helps you to develop the following Program Learning Outcomes:	This course helps you to develop the following Program Competency Goals:	This learning outcome will be assessed in the following items
PLO1, PLO2	PCG1	A1, A2, A3, A4
PLO1, PLO2, PLO3, PLO4	PCG1, PCG2	A2
PLO1, PLO2, PLO3, PLO4, PLO7, PLO8, PLO9	PCG1, PCG 2, PCG3	A2, A3
PLO1, PLO2, PLO7, PLO8, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14	PCG1, PCG 3, PCG4	A3, A4
PLO1, PLO2, PLO7, PLO8, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14, PLO15, PLO16	PCG1, PCG 3, PCG4, PCG5	A3

Evaluation Schema

The course grade will be determined based on:

Assessment Task	**Weightage (Percentage)**	**Nature (Individual/Group)**	**Week of Assessment**	**PLOs to be Assessed**
A1: Quiz	20%	Individual	Continuous	PLO1, PLO2
A2: Assignment	20%	Individual	8th Session	PLO1, PLO2, PLO3, PLO4, PLO7, PLO9
A3: Project Presentation	30%	Group	10th Session	PLO1, PLO2, PLO7, PLO8, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14, PLO15, PLO16
A4: Written Examination	30%	Individual	13th Session	PLO1, PLO2, PLO7, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14

Description of Assessments:

A1 – Quiz – These will be multiple choice questions and used to assess students' ability to understand conceptually and syntactically the critical concepts discussed in the class.

A2 – Assignment – This will be assigned a case which the students have to architect a Machine Learning based solution. The evaluation will be done on the coverage, research and presentation

A3 – Project Presentation – Identify and evaluate a business analytics issue and implement your learning as an end-to-end Python script. The presentation must carry a problem identification, analysis and a demo of the code implemented. A detailed note on the format for the presentation & submission would be provided separately.

A4 - Written Examination – Evaluate on overall learning objectives from the course. The in-class written examination will be of 30 marks of 90 minutes duration.

Rubrics for Assessment

A2 Assignment

Criteria/Level	Poor (0)	Fair (1-2)	Good (3-4)	Excellent (5)
Identification of the right problem	The problem identified has little relevance to the assignment guidelines	The problem identified has some relevance to the assignment guidelines	The problem identified is mostly relevant and topical and aligns to the assignment guidelines	The problem identified is very relevant and topical and aligns to the assignment guidelines
Solution to the problem(s)	Demonstrates superficial understanding and solution of problem(s)	Demonstrates limited understanding and solutioning of problem(s)	Demonstrates deep understanding of problem(s) and relevant solution(s)	Demonstrates a clear and deep understanding of the problem and comprehensive solution(s)

A3 Project Presentation Rubrics

Criteria/Level	Poor (0)	Fair (1-2)	Good (3-4)	Excellent (5)
Identification of the right dataset	The dataset identified has little relevance to the learning objectives or project guidelines	The dataset identified has some relevance to the learning objectives or project guidelines	The dataset identified is relevant and topical and aligns to the learning objectives and project guidelines	The dataset identified is relevant and topical and aligns to the learning objectives and project guidelines
Understanding of problem(s)	Demonstrates superficial understanding of problem(s)	Demonstrates limited understanding of problem(s)	Demonstrates deep understanding of problem(s)	Demonstrates a clear and deep understanding of an issue/problem

Quality of Analysis	No attempt to draw linkages between topic and research	Some connections drawn between topic and research with basic insights	Frequent connections drawn between topic and research showing some detail and deeper insights	Consistent insightful connections drawn between topic and research with adequate detail/ clearly explained and strong insights.
Logical Flow	No coherence or organisation of ideas	Little coherence and organisation of ideas generally clear.	Some coherence and organisation of ideas generally clear.	Coherent and clear organisations of ideas
Understanding and linking theory and concepts	Incomplete links between the problems and the theory.	Limited links between the problems and the theory.	Good, documented links between the problems and the theory.	Excellent documented links to the theory and possibly additional material read and used.

Teaching Method

The course will have a judicious mix of lectures, class discussions, demonstrations, and hands on activities using AWS lab infrastructure.

Textbook / Other Readings

Textbook:

Reference Book: Mengle, S., & Gurmendez, M. Mastering Machine Learning on AWS.

The online AWS course Machine Learning Foundations on awsacademy.com will be a reference for students for this course.

Session Plan

Session Details	**Topics**	**PLOs Covered**
Session 1	Introduction to the AWS Machine Learning Course	PLO1, PLO2
Objective of the sessions	Introduction to the Course Coverage	
Subtopics to be covered	• Overview of the course, lab infrastructure • Resources available on AWS	
Readings	AWS Module 1 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture	

Session 2	Recap of Machine Learning Fundamentals	PLO1, PLO2
Objective of the session	Learn about the ML Fundamentals	
Subtopics to be covered	• AI, ML, Deep Learning • ML Algorithms	
Readings	AWS Module 2 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 3	Machine Learning Process	PLO1, PLO2
Objective of the session	Understand the ML process	
Subtopics to be covered	• ML Pipelines • Tools & Python libraries • Sage Maker Overview • Challenges	
Readings	AWS Module 2 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 4	Implementing an End-to-End ML Pipeline	PLO1, PLO2
Objective of the session	Understand the end-to-end process, data sources and storage	
Subtopics to be covered	• Understand the end-to-end ML pipeline • Data Sources • Data storage in AWS • ETL Process	
Readings	AWS Module 3 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 5	Hands On Session- "Exploratory Analysis & Feature Engineering"	PLO1, PLO2, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Data preparation for modelling	
Subtopics to be covered	• Data exploration and Visualization • Feature Engineering • Feature Selection	
Readings	AWS Module 3 Student Notes	
Case Title & Number	Wine Dataset	
Pedagogy	Lecture and Hands On	
Session 6	Training and evaluating the model using Sage Maker	PLO1, PLO2,

Objective of the session	Model training and evaluation	PLO10, PLO11, PLO12, PLO13, PLO14
Subtopics to be covered	• Model Training • Model Evaluation	
Readings	AWS Module 3 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 7	Guest Lecture-1	PLO1, PLO2
Objective of the session	Understand the Applications of Machine Learning Algorithms in Making Business Decisions	
Subtopics to be covered	Guest Lecture by Dr. Arunava Ghosh, Strategy Manager, Enzene Biosciences Ltd.	
Readings	NA	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 8	Forecasting Applications	PLO1, PLO2, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Overview of Forecasting Applications	
Subtopics to be covered	• Times Series Applications • Data Preparation for time series forecasting	
Readings	AWS Module 4 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 9	Amazon Forecast Service	PLO1, PLO2, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Understand the Amazon Forecasting Tools	
Subtopics to be covered	• Supported Algorithms • Amazon Forecast	
Readings	AWS Module 4 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 10	Project Presentations	PLO1, PLO2, PLO7, PLO8, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14, PLO15, PLO16
Objective of the session	Applications of Learned Concepts	
Subtopics to be covered	Group-wise Project Presentations	
Readings	NA	
Case Title & Number	NA	
Pedagogy	Class Discussion and Presentation	

Session 11	Using and Building Facial Recognition Applications	PLO1, PLO2, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Understanding Computer Vision and Hands on with a computer vision application	
Subtopics to be covered	• Amazon Rekognition • Training the model	
Readings	AWS Module 5 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 12	Hands On Session – "Using AWS for Natural Language Processing Applications"	PLO1, PLO2
Objective of the session	Overview of AWS NLP tools	
Subtopics to be covered	• AWS Transcribe, Translate • AWS Comprehend • AWS Polly	
Readings	AWS Module 6 Student Notes	
Case Title & Number	NA	
Pedagogy	Lecture and Hands On	
Session 13	Written Examination	PLO1, PLO2, PLO7, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Theory and Applications of Learned Concepts	
Subtopics to be covered	In-class exam involving full syllabus	
Readings	NA	
Case Title & Number	NA	
Pedagogy	In-class written assignment	
Session 14	Revision Week	PLO1, PLO2, PLO7, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Course Revision and Doubt Clearing	
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	NA	
Pedagogy	NA	
Session 15	Revision Week	PLO1, PLO2, PLO7, PLO9, PLO10, PLO11, PLO12, PLO13, PLO14
Objective of the session	Course Revision and Doubt Clearing	
Subtopics to be covered	NA	
Readings	NA	
Case Title & Number	NA	

Pedagogy	NA

Disability Support

JGU endeavours to make all its courses accessible to students. The Disability Support Committee (DSC) has identified conditions that could hinder a student's overall wellbeing. These include physical and mobility-related difficulties, visual impairment, hearing impairment, mental health conditions, and intellectual/learning difficulties, e.g., dyslexia and dyscalculia. Students with any known disability needing academic and other support are required to register with the Disability Support Committee (DSC) by following the procedure specified at **https://jgu.edu.in/disability-support-committee/**

Students who need support may register any time during the semester up until a month before the end semester exam begins. Those students who wish to continue receiving support from the previous semester, must re-register within the first month of a semester. Last-minute registrations and support might not be possible as sufficient time is required to make the arrangements for support.

The DSC maintains strict confidentiality about the identity of the student and the nature of their disability and the same is requested from faculty members and staff as well. The DSC takes a strong stance against in-class and out-of-class references made about a student's disability without their consent and disrespectful comments referring to a student's disability.

All general queries are to be addressed to **disabilitysupportcommittee@jgu.edu.in**

***Disclaimer: This course outline including assessments, sessions and/or readings may be revised during the semester if such need arises.**