BIA290 Introduction to Artificial Intelligence
(3 credit hours)
Course Syllabus

Course Description

This is an introductory course to artificial intelligence that covers fundamental topics in AI, including search, reasoning, knowledge representation, planning, and machine learning.

Course Learning Outcomes

By the end of this course, you will be able to:

1. Understand what is AI, its applications and use cases, and how it is transforming our lives.

2. Explain terms like Machine Learning, Deep Learning, and Neural Networks.

3. Describe several issues and ethical concerns surrounding AI.

4. Describe the four main definitions of artificial intelligence.

5. Describe some of the fields in artificial intelligence research and their applications.

6. Apply some of the techniques used to build artificial intelligence systems.

7. Apply AI techniques in the development of problem-solving and learning systems.

Required Textbook(s) and Resources

Included Resources:

All required resources are included as links within the course.

Be sure to also review the weekly **Explore** sections for additional library or web resources. For access to databases, research help, and writing tips, visit the Tiffin University Library.

Time Commitment

Effective time management is possibly the single most critical element to your academic success. To do well in this online class you should plan your time wisely to maximize your learning through the completion of readings, discussions, and assignments. Because of our accelerated, seven-week term, TU online courses are designed with the expectation that you dedicate a little over **six (6)** hours per credit hour to course activities and preparation **each**

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week. For example, for successful completion of a three-credit, seven-week online course you should reserve roughly **twenty (20) hours per week**.

To help plan your time and keep on track toward successful course completion, note the distinctive rhythm of assignment due dates:

1. All times assume Eastern Time (GMT-4).

2. Weeks begin at 12:00 a.m. ET on Monday and end at 11:55 p.m. ET on Sunday.

3. Unless otherwise noted, initial assignments or discussion posts are due by **11:55 p.m. ET** on **Wednesdays.**

4. Additional assignments or follow-up discussion posts are due by **11:55 p.m. ET** on **Saturdays, and**

5. Major assignments and reflections are typically due by **11:55 p.m. ET** on **Sundays.**

Learning Activities

The activities in this course are designed to provide a balance of theoretical exploration and hands-on experience with artificial intelligence concepts and techniques. Through discussion forums, you will engage with peers to analyze and apply foundational topics such as data mining, fuzzy logic, and supervised and unsupervised learning. Assignments will challenge you to create semantic networks, build frame-based models, and write simple PROLOG programs, enabling you to explore knowledge representation and logic programming. You'll also use real-world datasets and no-code AI tools to solve machine learning problems and analyze clustering techniques. A final reflection activity will tie together your learning, emphasizing how AI concepts and tools can be applied to real-world scenarios and future studies.

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Grading

The chart below identifies the individual contributions from each type of activity, per week.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Total
Forums Activity 1.1 (n/a) Activity 1.2 (40)	**Forums** Activity 2.1 (40)	**Forums** Activity 3.1 (40)	**Forums** Activity 4.1 (40)	**Forums** Activity 5.1 (40)	**Forums** Activity 6.1 (40)	**Forums** Activity 7.1 (40)	**280**
Assignments Activity 1.3 (80)	**Assignments** Activity 2.2 (80)	**Assignments** Activity 3.2 (80)	**Assignments** Activity 4.2 (80)	**Assignments** Activity 5.2 (80)	**Assignments** Activity 6.2 (80)	**Assignments** Activity 7.2 (140) Activity 7.3 (100)	**720**
120	**120**	**120**	**120**	**120**	**120**	**280**	**1000**

Undergraduate Grading Scale

A: 90-100%

B: 80-89%

C: 70-79%

D: 60-69%

F: <60%

Course Schedule and Weekly Checklist

Start Here

6. MON: Activity 1.1: Introductions

Week 1

7. WED: Activity 1.2: Data Mining Exploration – Initial Post

8. SAT: Activity 1.2: Data Mining Exploration

9. SUN: Activity 1.3: AI Applications in Real Life

Week 2

10. WED: Activity 2.1: Exploring Semantic Networks – Initial Post

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11. SAT: Activity 2.1: Exploring Semantic Networks – Follow-Up Post

12. SUN: Activity 2.2: Practical Applications of Frames

Week 3

13. WED: Activity 3.1: Exploring Fuzzy Logic Applications – Initial Post

14. SAT: Activity 3.1: Exploring Fuzzy Logic Applications – Follow-Up Post

15. SUN: Activity 3.2: Building a Simple PROLOG Program

Week 4

16. WED: Activity 4.1: Exploring Uninformed Search – Initial Post

17. SAT: Activity 4.1: Exploring Uninformed Search – Follow-Up Post

18. SUN: Activity 4.2: State Space Problem-Solving

Week 5

19. WED: Activity 5.1: Machine Learning Tasks – Initial Post

20. SAT: Activity 5.1: Machine Learning Tasks – Follow-Up Post

21. SUN: Activity 5.2: Applying Supervised and Unsupervised Learning

Week 6

22. WED: Activity 6.1: Supervised Learning Discussion – Initial Post

23. SAT: Activity 6.1: Supervised Learning Discussion – Follow-Up Post

24. SUN: Activity 6.2: Exploring AI Tools for Machine Learning

Week 7

25. WED: Activity 7.1: Unsupervised Learning Discussion – Initial Post

26. SAT: Activity 7.1: Unsupervised Learning Discussion – Follow-Up Post

27. SUN: Activity 7.2: Exploring AI Tools for Unsupervised Learning

28. SUN: Activity 7.3: Course Reflection

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Tips for Success

Online learning requires self-discipline and self-direction. As seekers of the truth, we should be willing to challenge one another's academic work in a spirit of respectful comradery. Your course is a place for you to grow as you benefit from the expertise, experience, and diverse perspectives of your instructor and peers. Constructive feedback will challenge you to stretch your own thinking, thereby expanding your knowledge and understanding.

To get the most out of your learning experience, you should actively engage (participate) in **ALL** course activities. Course elements are arranged chronologically. To complete a week, simply work your way "down the page" through all of the course materials and activities.

For More Information:

Be sure to review the Support, Policies, and Procedures addendum.

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