

# De Anza College

## Program Outline Report

### Program Basics

<b>Program Title:</b>	Applied Artificial Intelligence Certificate of Achievement
<b>Program Status:</b>	In development
<b>Department:</b>	CIS - Computer Sci and Info Systems
<b>Award Type:</b>	Certificate of Achievement (COA) (Credit)
<b>Program Description</b>	The Certificate of Achievement in Applied Artificial Intelligence (AI) explores the foundational concepts of AI through theory discussions and hands-on beginning level applications. The certificate is designed for those with limited programming, math, and statistics background. The series of courses in the certificate will introduce students to the core methodologies and techniques in AI, introductory level AI applications, emerging trends, and ethical considerations.
<b>Control Number:</b>	No value
<b>Credential ID:</b>	COA_Applied Artificial Intelligence
<b>TOP Code (SP01) :</b>	0799.00
<b>TOP Code (SP01) :</b>	*Other Information Technology
<b>CIP Code:</b>	(11.0102) Artificial Intelligence.
<b>Maximum Units:</b>	23
<b>Minimum Units:</b>	20
<b>Curriculum Committee Approval Date:</b>	No value
<b>Board of Trustees Approval Date:</b>	No value

## Proposal Details

Proposal Start: Fall 2026

### Submission Rationale

- New Program

## Program Files Upload

### Program Requirements File - ALL certificate/degree programs

ProgramRequirements\_AppliedAI\_COA\_2026F.docx

 Download

### LMI File - ALL CTE certificate/degree programs

LMI\_AppliedAI\_COA\_2026F.pdf

 Download

### Advisory Board Minutes File - Credit CTE certificate/degree programs ONLY

AdvisoryMinutes\_AppliedAI\_COA\_2026F.pdf

 Download

### Regional BACCC Minutes File - Credit CTE certificate/degree programs ONLY

No Value

### TMC Template File - Transfer degree programs ONLY

No Value

### ASSIST File(s) - Transfer certificate/degree programs ONLY

No Value

## Program Goal

**Program Goal**

CTE

## Program Header

**Program Header**

Computer Science and Information Systems – Artificial Intelligence

## Program Division

**Program Division**

2CB

## Program Sub-Award

**Program Sub-Award**

NA

## Comments - Program

**Stage 2: CTE Dean**

No Value

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**Stage 3: Department Chair**

No Value

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**Stage 4: Division Curriculum Representative**

No Value

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**Stage 5: Division Dean**

No Value

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**Stage 6: SLO Coordinator**

No Value

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**Stage 8: Articulation Officer**

No Value

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**Stage 9: Curriculum Committee**

No Value

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## Curriculum Office - Program

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**Program Distance Education**

0% (0000)

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**Program Apprenticeship**

No

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**Program CDCP Eligibility Criteria**

NA

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**Program Employment Potential**

LMID EDD Consultant (Imidedd)

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**Program Code**

No Value

**Curriculum Office Notes**

No Value

**Program Requirements****COA\_Applied Artificial Intelligence (Total 20-23)****Complete all of the following**

IMPORTANT NOTE: Some courses have prerequisites; see the college catalog for more information. 0

IMPORTANT NOTE: Some courses have a cross-listed and/or honors version. Students will receive credit for only one version of the course. 0

**Required Core: (Total 13.5)****Complete all of the following**

CISD040. - Introduction to Programming in Python 4.5

CISD051. - Introduction to Prompt Engineering 4.5

CISD067. - Implementing Responsible AI 4.5

**List A - Complete one option: (Total 6.5-9.5)****Complete the following number of units: 6.5-9.5****Option 1: (Total 9.5)****Complete the following number of units: 9.5**

CISD007. - Introduction to Artificial Intelligence 4.5

STATC1000 - Introduction to Statistics 5

STATC1000H - Introduction to Statistics - HONORS 5

**Option 2: (Total 6.5)****Complete all of the following**

CISD011. - Foundations of Data Science for All 4.5

CISD111X - Support for Foundations of Data Science for All 2

**Recommended Sequences**

No value

## Program Outcomes

### COA\_Applied Artificial Intelligence

PSLO	Performance
Discuss Artificial Intelligence (AI) core concepts and explain the fundamentals of AI applications	100
Design and utilize effective prompts for Large Language Models, which includes understanding and usage of major prompt patterns, Retrieval Augmented Generation, AI agent, and customized GPT	100
Evaluate, design, and implement responsible and ethical AI solutions with transparency and accountability	100

## Program Narrative

### 1. Program Goals and Objectives

The Certificate of Achievement in Applied Artificial Intelligence (AI) explores the foundational concepts of AI through theory discussions and hands-on beginning level applications. The certificate is designed for those with limited programming, math, and statistics background. The series of courses in the certificate will introduce students to the core methodologies and techniques in AI, introductory level AI applications, emerging trends, and ethical considerations.

## 2. Master Planning

Prior to 2020 De Anza Computer Science & Information Systems (CIS) department introduced the courses that would become foundational to Data Science courses and the AI program. Prior to 2020, three Python courses and one R programming course were created and being taught. These form the foundation for data science and artificial intelligence work. CIS 9 Introduction to Data Science will be replaced over the next two years. CIS 11 and its support course is slated to be offered Fall 2025. Seven courses focused on artificial intelligence will become effective and be ready to be offered: Introduction to Artificial Intelligence, Introduction to Prompt Engineering, Implementing Responsible AI, Introduction to Deep Learning, Introduction to Machine Learning, Foundations of Machine Learning, Introduction to Natural Language Processing,

The need for this proposed program is evident. According to ProFocus, a recruiting firm, (<https://www.profocus technology.com/general/tech-employment-2024-market-trends-report/>): "Artificial intelligence continues to dominate tech job openings, with a notable 5.6% rise in AI vacancies from Q1 to Q2 of 2024. This marks a 31.5% increase compared to 2023."

CompTIA, a trade association that provides certification and training in technology, stated that (<https://connect.comptia.org/blog/artificial-intelligence-statistics-facts>):

- AI technology is expected to create 12 million more jobs than it is expected to replace.
- Jobs are anticipated to be in high demand, with 97 million specialists needed in the AI industry by 2025.
- More than 1 in 4 dollars invested in American startups in 2023 went to an AI-related company.

## 3. Enrollment Numbers

Course ID	Year 1 (2023-24)		Year 2 (2024-2025)	
	Annual # Sections	Annual Enrollment Total	Annual # Sections	Annual Enrollment Total
CIS 40	20	658	21	667
CIS 51	new	new	new	new
CIS 67	new	new	new	new

#### 4. Place of Program in Curriculum/Similar Programs

This is one of four AI related programs the CIS department is introducing. These four programs are scaffolded, each centered on anticipated student goals:

- Applied Artificial Intelligence Certificate of Completion is designed to provide students with knowledge and skills required for a variety of entry level positions in the field of Artificial Intelligence.
- Applied Artificial Intelligence Certificate of Achievement
- Applied Artificial Intelligence Certificate of Achievement – Advanced is the pathway to more in-depth learning of skills necessary in working as a professional in data science and artificial intelligence fields.
- Applied Artificial Intelligence Associate of Science ensures that the student has a degree fulfilling general education requirements in addition to the skills needs to work in jobs needing skills to employ artificial intelligence in solving organizational needs.

This award does not replace any existing reward although with the introduction of the new data science course and these AI programs the CIS 9 Introduction to Data Science will be phased out.

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#### 5. Similar Programs at Other Colleges in Service Area

Within the Service area of De Anza College (Foothill College, Mission College, and West Valley College) only Mission College currently offers a program in Artificial Intelligence: Certificate of Achievement in Artificial Intelligence. This certificate offers an introduction to each area of AI: Introduction to Artificial Intelligence, Introduction to Deep Learning, Introduction to Data Analysis, Introduction to Machine Learning along with a foundational course in Python programming.

Unlike Mission College, this certificate is also offered as noncredit Certificate of Completion. Another, perhaps more important difference is that an emphasis of this certificate is on using AI on the job with the course in prompt engineering and another in using AI responsibly.

Multiple faculty members have been attending meetings and workshops in conjunction with UC Berkely's Data Science and AI programs. This has shaped our program to incorporate their Data 8 course and to create our courses as UC transferable.

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## 6. Enrollment and Completer Projections

A pivotal course in this certificate is CIS 40 Introduction to Programming in Python. Between 2020-21 academic year and 2023-24 the enrollment in this course rose by 18% to 659 for the academic year of 2023-24.

Considering the projection in needs as presented by the US Bureau of Labor Statistics

(<https://www.bls.gov/careeroutlook/2025/article/fastest-growing-industry-sector.htm>

(<https://www.bls.gov/careeroutlook/2025/article/fastest-growing-industry-sector.htm>)) demonstrates demand will be high for completers of this program.

### Chart 2. Fastest growing occupations in professional, scientific, and technical services, projected 2023–33 (percent)

Occupation	Employment percent change, 2023–33
Data scientists	41.7
Information security analysts	41.4
Computer and information research scientists	31.6