FLORIDA STATE COLLEGE AT JACKSONVILLE

COLLEGE CREDIT COURSE OUTLINE

COURSE NUMBER: IDC 4022C

COURSE TITLE: Machine Learning for FinTech

PREREQUISITE(S): FIN 3450 and IDC 3021C

COREQUISITE(S): None

CONDITION(S): None

CREDIT HOURS: 3

CONTACT HOURS/WEEK: 4

CONTACT HOUR BREAKDOWN:

Lecture/Discussion:

Laboratory:

Other: Lecture/Lab Combined 4

FACULTY WORKLOAD POINTS: 4

STANDARDIZED CLASS SIZE

ALLOCATION: 24

CATALOG COURSE DESCRIPTION:

This course introduces concepts in machine learning as applied to financial applications. Fundamentals of model training and algorithms are presented, followed by case studies and hands-on exercises in financial applications such as AML (anti-money laundering), fraud detection, and credit evaluation using cloud-based tools.

SUGGESTED TEXT(S): Fenner, Mark. "Machine Learning with Python for Everyone". Addison-Wesley Professional; 1st edition.   
ISBN 978-0134845623  
Free digital version available on OReilly.com

Korner, Cristoph. "Mastering Azure Machine Learning". Packt Publishing (April 30, 2020). ISBN 978-1789807554  
Free digital version available on OReilly.com

Mishra, Abhishek. "Machine Learning in the AWS Cloud". Sybex; 1st edition (September 11, 2019).   
ISBN 978-1119556718.  
Free digital version available on OReilly.com

IMPLEMENTATION DATE: Fall Term 2022 (2228) – Proposal 2021-24

REVIEW OR MODIFICATION DATE:

COURSE TOPICS CONTACT HOURS

PER TOPIC

1. Introduction to Machine Learning 2
2. MLOps/Workflow 2
3. Algorithms and Models 12
4. Programming Languages for Machine Learning 16
5. Training 8
6. Cloud Tools 8
7. Fraud Detection Applications 4
8. Anti-Money Laundering (AML) 4
9. Credit Evaluation 4

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| **Florida State College at Jacksonville** | **Course Learning Outcomes and Assessment** |

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| **SECTION 1** | | | | | | | | | | | | | | | | | | | | | | | |
| Course Prefix and Number: | | | | | IDC 4022C | | | | | | | | | | Semester Credit Hours (Credit): | | | | | | | | 3 |
| Contact Hours (Workforce): | | | | | | | |  |
| Course Title: | | | | | Machine Learning for FinTech | | | | | | | | | | | | | | | | | | |
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| **SECTION 2a *(To be completed for General Education courses only.)*** | | | | | | | | | | | | | | | | | | | | | | | |
| ***TYPE OF COURSE (Place an “X” in the box next to those that are applicable.)*** | | | | | | | | | | | | | | | | | | | | | | | |
|  | General Education Core (If selected, core discipline area will be identified in Section 4.) | | | | | | | | | | | | | | | | | | | | | | |
|  | General Education (If selected, you must also complete Section 4, Section 5, and Section 8) | | | | | | | | | | | | | | | | | | | | | | |
| **SECTION 2b** | | | | | | | | | | | | | | | | | | | | | | | |
| ***TYPE OF COURSE (Place an “X” in the box next to those that are applicable.)*** | | | | | | | | | | | | | | | | | | | | | | | |
|  | A.A. Elective | | | | | | |  | | A.S. Required Course | | | | | | | | |  | A.S. Professional Elective | | | |
|  | A.A.S. Required Course | | | | | | |  | | A.A.S. Professional Elective | | | | | | | | |  | Technical Certificate | | | |
|  | PSAV/Clock Hour/Workforce | | | | | | |  | | Development Education | | | | | | | | |  | Apprenticeship | | | |
| X | Upper Division/Bachelors | | | | | | | X | | Other: | | Advanced Technical Certificate | | | | | | | | | | | |
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| **SECTION 3** | | | | | | | | | | | | | | | | | | | | | | | |
| ***INTELLECTUAL COMPETENCIES (Place an “X” in the box next to those that are applicable.)*** | | | | | | | | | | | | | | | | | | | | | | | |
|  | | Reading |  | Speaking | | |  | | Critical Analysis | | | | |  | | | Qualitative Skills | | | |  | Scientific Method of Inquiry | |
|  | | Writing |  | Listening | | |  | | Information Literacy | | | | |  | | | Ethical Judgement | | | |  | Working Collaboratively | |
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| **SECTION 4 *(To be completed for General Education courses only.)*** | | | | | | | | | | | | | | | | | | | | | | | |
| ***GENERAL EDUCATION DISCIPLINE AREA (Place an “X” in the box next to those that are applicable.)*** | | | | | | | | | | | | | | | | | | | | | | | |
|  | Communications | | | | |  | | | | Humanities | | |  | | | Mathematics | | | | | | | |
|  | Social and Behavioral Sciences | | | | | | | | | | | |  | | | Natural Sciences | | | | | | | |
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| **SECTION 5 *(To be completed for General Education courses only.)*** | | | | | | | | | | | | | | | | | | | | | | | |
| ***GENERAL EDUCATION LEARNING OUTCOME AREA (Place an “X” in the box next to those that are applicable.)*** | | | | | | | | | | | | | | | | | | | | | | | |
|  | Communication | | | | |  | | | | Critical Thinking | | |  | | | Information Literacy | | | | | | | |
|  | Scientific and Quantitative Reasoning | | | | | | | | | | | |  | | | Global Sociocultural Responsibility | | | | | | | |
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| **SECTION 6** | | | | | | | | | | | | | | | | | | | | | | | |
| ***LEARNING OUTCOMES*** | | | | | | | | | | | ***TYPE OF OUTCOME***  ***(General Education, Course or Program)*** | | | | | | | ***METHOD OF ASSESSMENT*** | | | | | |
| Describe MLOps (machine learning operations) practices and tools | | | | | | | | | | | Course | | | | | | | Exams and/or Projects | | | | | |
| Demonstrate basic programming skills by developing and implementing algorithms to solve problems | | | | | | | | | | | Course | | | | | | | Exams and/or Projects | | | | | |
| Demonstrate proficiency in selecting, building, and training a learning model using financial data | | | | | | | | | | | Program/Course | | | | | | | Exams and/or Projects | | | | | |
| Implement a learning model on a commonly used framework | | | | | | | | | | | Program/Course | | | | | | | Exams and/or Projects | | | | | |

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| **SECTION 7** | | | |
| Faculty name(s): | David Singletary | Date: | 8/5/21 |