**BADS 7201: Programming for Machine Learning**

**Semester 1/2019**

**Course**

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| Lecture: | Section R1: Wednesdays 1:00PM-4:00PM, Navamindradhiraj Building, Lab 1  Section B1: Sundays 9:00AM-12:00PM, Siam Boromrajakumari Building, Lab 2 |

**Instructor**

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| Name: | Pramote Kuacharoen |
| Office: | Navamindradhiraj Building, Room 1333 |
| Office Hours: | Mon 9:00AM-12:00PM, Tue 1:00PM-4:00PM |
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**Course Description**

Practices in programming for machine learning, programming for modifying and tuning parameters in machine learning algorithms, programming from machine learning algorithms.

**Prerequisites**

BADS 6005 Applied Machine Learning or Instructor Consent

**Expected Learning Outcomes**

On successful completion of this course, students should be able to:

1. Write machine learning algorithms in Python
2. Modify and tune parameters in machine learning algorithms
3. Apply machine learning algorithms to solve problems

**Class Attendance & Participation**

The class will frequently involve discussion of course material. Participation of each student is crucial. Therefore, class attendance is required. Students are expected to attend at least 80% of class time.

**Class Disruption**

Disruption of any kind will not be tolerated in this course. Students with beepers, cell phones, radios, or any noise emitting devices are requested to shut them off prior to entering the class. If you disturb the classroom atmosphere, you will be asked to leave. Leaving class early and coming to class late are also disruptive to the class atmosphere. If students must come late or leave early, please show consideration for others within the class and sit in the back of the room to minimize class disruption.

**Academic Integrity**

Academic dishonesty will not be tolerated. Any duplicate or near duplicate project submissions will result in a letter grade reduction for the course grade for all students involved and zero grade for the project. You may discuss projects with other students, but sharing of code in any form is not acceptable. This means that looking at another student’s code or showing your code to another student is not permitted. If you need help with a project, you may contact the instructor.

**Text**

Machine Learning Algorithms, 2nd edition by Giuseppe Bonaccorso

**Grading Policy**

The course grade is determined by projects, quizzes, and tests.

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| Projects: | 60% |
| Midterm: | 20% |
| Final: | 20% |

**Tentative Schedule**

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| Week | Topics |
| 1 | Introduction, Python Crash Course, Numpy, Pandas, Data Visualization |
| 2 | Regression Algorithms |
| 3 | Linear Classification |
| 4 | Naïve Bayes and Discriminant Analysis |
| 5 | Support Vector Machines |
| 6 | Decision Trees and Ensemble Learning |
| 7 | Clustering |
| 8 | Hierarchical Clustering |
| 9 | Recommendation Systems |
| 10 | Natural Language Processing |
| 11 | Neural Networks |
| 12 | Deep Learning |
| 13 | Reinforcement Learning |
| 14 | Semi-Supervised Learning |
| 15 | Graph-Based Semi-Supervised Learning |