**Boston University** Metropolitan College
COMPUTER SCIENCE DEPARTMENT

# Web Analytics and Mining
# MET CS 688 OL

**Instructor:**
Zlatko Vasilkoski
email: zlatko@bu.edu
Office hours: by appointment

**Live Classrooms Sessions:**
Thursday at 8:00pm.

**Course Prerequisites**
CS544 (Foundations of Analytics) or CS555 (Data Analysis and Visualization).

**Course Description**
The Web Analytics and Mining course covers the areas of web analytics, text mining, web mining, and practical application domains. The web analytics part of the course studies the metrics of web sites, their content, user behavior, and reporting. Google analytics tool is used for collection of web site data and doing the analysis. The text mining module covers the analysis of text including content extraction, string matching, clustering, classification, and recommendation systems. The web mining module studies how web crawlers process and index the content of web sites, how search works, and how results are ranked. In addition, certain aspects of cloud computing will be illustrated, and you will create probably your first Internet of Things (IoT) analytics. Application areas mining the social web and game metrics will be extensively investigated.

**Learning Objectives**
By successfully completing this course you will understand and perform/use:

- Web analytics, including metrics, key performance indicators, referrers and visitors, how to identify important pages, and web site visibility.
- Web analytics tools, including using and collecting data with Google Analytics, dimensions and segmentation, flow visualization and navigating reports.

- Text mining, including preprocessing and content extraction, searching and fuzzy string matching, clustering text, classification, categorization, and tagging, and question answering systems.
- Web mining using web crawlers and indexing, searching, precision and recall, and ranking.
- Applications for mining the social web such as Twitter, LinkedIn, and mailboxes.
- Game analytics, including telemetry and analytics, telemetry collection and tools, game data analysis and visualization.

**Course Grading Policy**

The course grade will be based on active discussion participation (10%), assignments (20%), term project (25%), and final exam (45%). Assignments are expected to be submitted by their respective due dates. Late submissions carry a penalty.

**Course Topics**

**Module 1 - Web Analytics**

- Metrics
- Key performance indicators
- Referrers and visitors
- Identifying important pages
- Web site visibility

**Module 2 - Web Analytics Tools**

- Using Google Analytics
- Collecting data with Google Analytics
- Dimensions and Segmentation
- Flow visualization, navigating reports

**Module 3 - Text Mining**

- Preprocessing and content extraction
- Searching and fuzzy string matching
- Clustering text
- Classification, categorization, and tagging
- Question answering systems

**Module 4 - Web Mining**

- Web Crawlers, Indexing

- Searching, precision and recall
- Ranking
- IoT (Internet of Things)

**Module 5 - Applications - Mining the Social Web**

- Twitter - trending topics, Facebook - Social Graph API
- LinkedIn - Clustering colleagues, Google - Document Similarity

**Module 6 - Applications - Game Analytics**

- Game metrics, telemetry, and analytics
- Telemetry collection and tools
- Game data analysis and visualization
- Case studies

**Reference Textbooks**

Michael Beasley, Practical Web Analytics for User Experience: How Analytics can help you Understand your Users, Morgan Kaufmann, 2013.

Grant S. Ingersoll, Thomas S. Morton, and Andrew L. Farris, Taming Text: How to find, organize, and manipulate It, Manning Publications, 2013.

Matthew A. Russell, Mining the Social Web, 2nd Edition, O'Reilly, 2013

Magy Seif El-Nasr, Anders Drachen, Alessandro Canossa, eds., Game Analytics: Maximizing the Value of Player Data, Springer, 2013.

Barney L. Capehart, Ph.D., C.E.M., Michael R. Brambley, Ph.D., Automated Diagnostics and Analytics for Buildings, Fairmont Press, 2014.

**Course Web Site**

**http://learn.bu.edu**

**Student Conduct Code**

**http://www.bu.edu/met/for-students/met-policies-procedures-resources/academic-conduct-code/**