Tongji University
Academic Mobility Program

2010552 Business Analytics

Course Code	2010552	**Course Name**	Business Analytics	
Instructor	Yili Liu	**Guest Speaker**	Cairong Zhao	
Course delivery	Lectures	Interactive Seminars	Outreach Workshop	Field Trip(s)
	√	√		
	Tutorials	Projects	Presentations	Group Activities
	√		√	√
Academic Credits	This course is worth 7.5 ECTS points.			
Total Teaching Hours	48 hours			
Prerequisite	The course is open for business students.			
Mode of Teaching	Virtual and In person class options available.			

Course Description

By adequately capturing, analysing and interpreting data can have an extensive impact on the productivity of the business. Business analytics are now strategic necessities for business growths in this competing business environment. This course aims to explore advanced quantitative analytical techniques, tools and technologies commonly used when undertaking managerial planning and decision-making. It encompasses topics like analysis of social media data, automated machine learning, visual analytics, open source tools, agile methods, and ethical issues like algorithmic bias.

The course does not require students to be equipped with programming skills prior to this course. The analytic techniques and analytical skills developed from this course will prepare the students more competitive in the future business workplace.

The software tools mentioned during class include Microsoft Excel, R, SAS Visual Analytics, DataRobot, SPSS, KNIME and Tableau.

Brief Schedule and Topics

- Introduction to Business Analytics
- Data Analytics for Business
- Data Exploration in Business Analytics
- Data Mining Methods in Business Analytics
- Clustering and Segmentation
- Multiple Linear Regression
- Classification and Regression Trees (CART)
- Visualization and Communication
- Automated Machine Learning
- Technology Infrastructure for Business Analytics
- Working with Unstructured Data
- Business Analytics Methodology
- Design and Agile Thinking
- Ethical Aspects

Learning Objective

By the end of this course you should be able to:

- Appreciate the role and impact of business analytics for accounting, reporting and decision making
- Apply appropriate quantitative analytical techniques to organisational decision making using appropriate technology
- Apply data analysis methods using spreadsheets and other tools
- Effectively interpret results and assumptions of data analysis and analytical modelling and communicate them – verbally and in written form – to relevant stakeholders

Requirements

The course is open for postgraduate business students.

Reference Books

Richard Vidgen, Sam Kirshner & Felix Tan (2019), Business Analytics: A Management Approach, Red Globe Press.

Tanushri Banerjee & Arindam Banerjee (2019), Business Analytics, SAGE Publishing.

Academic journal articles and handouts on specific topics will be used to supplement the textbook and lecture material.

Course materials (including lecture notes, supplementary readings and solutions to assignment questions) are handed out during the class.

Assessments

*Details of assessments will be announced in class.

Assessments in this course include:

Individual Assignment (30%)

More details are to be announced in class.

Group project (40%)

Students will be allocated into groups to complete a group project relating to course topics. More details are to be announced in class.

Final Exam(30%)

A two hours formal final examination will be scheduled by the lecture and conducted in the class.

Detailed Daily Schedule (TBC)

Topic (tentative)	Activities
Introduction to Business Analytics	Lecture/seminar; Case Studies; In-Class Activities
Data Analytics for Business	Lecture/seminar; Case Studies; In-Class Activities
Data Exploration in Business Analytics	Lecture/seminar; Case Studies; In-Class Activities
Data Mining Methods in Business Analytics	Lecture/seminar; Case Studies; In-Class Activities
Clustering and Segmentation	Lecture/seminar; Case Studies; In-Class Activities
Multiple Linear Regression	Lecture/seminar; Case Studies; In-Class Activities
Classification and Regression Trees (CART)	Lecture/seminar; Case Studies; In-Class Activities
Visualization and Communication	Lecture/seminar; Case Studies; In-Class Activities
Automated Machine Learning	Lecture/seminar; Case Studies; In-Class Activities
Technology Infrastructure for Business Analytics	Lecture/seminar; Case Studies; In-Class Activities; Individual Assignment Submission (30%)
Working with Unstructured Data	Lecture/seminar; Case Studies; In-Class Activities
Business Analytics Methodology	Lecture/seminar; Case Studies; In-Class Activities
Design and Agile Thinking	Lecture/seminar; Case Studies; In-Class Activities
Ethical Aspects	Lecture/seminar; Case Studies; In-Class Activities; Group Project Submission (40%); Final Exam (30%)

Content is subject to change.

In light of the significant uncertainty surrounding the COVID-19 pandemic, this course offers both virtual and In person class options.

Academic Integrity and Policies

Tongji University Academic Policy for international students makes reference to the Academic Policy for Undergraduates (Issuing on 20th, June 2005) and Academic Policy for Postgraduates.

Academic Integrity

Students are expected to uphold the university's academic honesty principles, which are an integral part of the university's core values and principles. Academic achievement is generally evaluated based on work that a student produces independently. If a student fails to observe the standards of academic honesty, he or she could attract penalties and even disqualification from the course in more serious circumstances. All students are responsible for understanding and following Tongji's academic code, which is described below.

> Academic dishonesty or cheating includes acts of plagiarism, misrepresentation, fabrication, failure to reference materials used properly and forgery. These may include, but are not limited to: claiming the work of others as your own, deliberately applying false and inaccurate information, copying the work of others in part or whole, allowing others in the course to copy your work in part or whole, failing to appropriately acknowledge the work of other scholars/authors through acceptable referencing standards, purchasing papers or writing papers for other students and submitting the same paper twice for the same subject.
>
> Moreover, falsifications in any connection with the academic process such as change of academic transcript violate the code. Misunderstanding the policy is not an excuse for dishonesty. Students who are hesitant about any point of the policy should seek advice from their course instructors or an academic advisor.

This Academic Integrity policy applies to all students of the Tongji University in all programmes of study, including non-graduating students as well as Tongji alums, insofar as it associates with transcripts and other records of work at Tongji. It is to reinforce the University's commitment to maintaining integrity and honesty in all academic activities of the University community.

Policy

The foundation of good academic work is honesty. Maintaining academic integrity upholds the standards of the University. The responsibility for maintaining integrity in all the activities of the academic community lies with the students as well as the faculty and the University. Everyone in this community must work together to ensure that the values of truth, trust and justice are upheld.

Academic dishonesty affects the University's reputation and devalues the degrees offered.

The University will impose serious penalties on students who are found to have violated this Policy. The following penalties may be imposed:

i. Expulsion;
ii. Dismissal;
iii. Suspension;
iv. Zero marks/ fail grade;
v. Marking down;
vi. Re-doing/re-submitting of assignments or reports; and
vii. Reprimand.