Course Name	**INTRODUCTION TO DATA SCIENCE**		Course Code		**ITEC313**	
Credit Hours	3		**Contact Hours**	Lec	Lab	Total
				2	2	4

Offered as	☐ University Requirement ☐ College Requirement ☒ Program Requirement ☒ Core ☐ Elective
	☒ ITEC ☐ COMP ☐ CNET

Level	5	**Prerequisite**	MATH262

Course Description:

Data Science is the study of the generalizable extraction of knowledge from data. Being a data scientist requires an integrated skill set spanning mathematics, statistics, databases and other branches of computer science along with a good understanding of the craft of problem formulation to engineer effective solutions. This course will introduce students to this rapidly growing field and equip them with some of its basic principles and tools as well as its general mindset. Students will learn concepts, techniques and tools they need to deal with various facets of data science practice, including data collection and integration, exploratory data analysis, predictive modeling, descriptive modeling, data product creation, evaluation, and effective communication. The focus in the treatment of these topics will be on breadth, rather than depth, and emphasis will be placed on integration and synthesis of concepts and their application to solving problems. To make the learning contextual, real datasets from a variety of disciplines will be used.

On completing this course, students will be able to:

- ♦ Describe Data Science and the skill sets needed to be a data scientist.
- ♦ Understand the Data Science Process and how its components interact.
- ♦ Carry out basic statistical modeling and analysis.
- ♦ Explain the significance of exploratory data analysis (EDA) in data science.
- ♦ Apply basic tools (plots, graphs, summary statistics) to carry out EDA.
- ♦ Use APIs and other tools to scrap the Web and collect data.
- ♦ Apply EDA and the Data Science process in a case study.

Assessment Methods	☒ **Assignment-1**	10%	☒ **Mid Exam**	15%	☒ **Mini Project**	15%
			☒ **Lab Exam**	20%	☒ **Final Exam**	40%

Text Books:
- Chirag Shah, "A Hands-On Introduction to Data Science", 1st Edition, © 2020 | ISBN-10:1108472443, ISBN-13:978-1108472449, Cambridge University Press

References:
- Foster Provost and Tom Fawcett, "Data Science for Business: What You Need to Know about Data Mining and Data-analytic Thinking", 2013, ISBN 1449361323.
- Cathy O'Neil and Rachel Schutt, "Doing Data Science, Straight Talk From The Frontline", O'Reilly, 2014, ISBN: 978-1-449-35865-5.
- Trevor Hastie, Robert Tibshirani and Jerome Friedman, "Elements of Statistical Learning", Second Edition, 2009, ISBN 0387952845. (free online)