

# BACHELOR OF SCIENCE IN APPLIED ANALYTICS

## Applied Analytics

The Bachelor of Science in Applied Analytics combines training in using quantitative research methods and communicating their results. Students pursuing a Bachelor of Science in Applied Analytics will develop an understanding of:

- How to collect, curate, and analyze data.
- How to communicate the implications of data to various audiences and applications.
- How to apply the aforementioned skills with respect to the social sciences, psychology, or business.

Students majoring in applied analytics must complete core courses in statistics and theory, computer science, and communication. Through free electives and proper advising, students will be able to tailor their focus around topics including but not limited to advanced statistics, data mining, information management systems, geographic information systems, online social networks, and psychological testing. The required capstone project will be based on these core courses and electives, highlighting students' skills as well as their personal interests.

Successful completion of the applied analytics degree ensures students will be able to manage and analyze data using an array of statistical approaches. They will be well prepared for the workplace and/or advanced research in statistics or fields in which knowledge of statistics is required, particularly careers in data science, market analysis, business analysis, bioinformatics, psychometrics, and public relations. Our career advising is based on the close monitoring of the types of analytics needed today and in the future.

## Required Courses

<b>Introduction to Profession</b>			(2-3)
Select one of the following:			2-3
BUS 100	Introduction to Business	3	
LCHS 100	Introduction to the Professions	2	
PSYC 100	Introduction to the Profession	3	
SSCI 100	Introduction to the Profession	3	
<b>Theory and Data (TD) Requirements</b>			(7)
MATH 251	Multivariate and Vector Calculus	4	
MATH 474	Probability and Statistics	3	
<b>Specialization Requirements</b>			(12-14)
Students must complete 12 credit hours in a specialization track. Select four courses in one of the specialization tracks below:			12-14
Business/Economics specialization courses			
BUS 221	Analytics for Informed Decision-Making	3	
ECON 151	Making Strategic Decisions in the Marketplace	3	
ECON 152	Understanding and Competing in the Global Marketplace	3	
ECON 423	Economic Analysis of Capital Investments	3	
Psychology specialization courses			
PSYC 203	Undergraduate Statistics for the Behavioral Sciences	4	
PSYC 204	Research Methods in Behavioral Science	4	
PSYC 221	Introduction to Psychological Science	3	
PSYC 320	Applied Correlation and Regression	3	
Social Sciences/Humanities specialization courses			
COM 381	Topics in Communication <sup>1</sup>	3	
or PS 385	Topics in Political Science		
or SOC 385	Topics in Sociology		
COM 383	Social Networks	3	
PSYC 203	Undergraduate Statistics for the Behavioral Sciences	3-4	
or BUS 221	Analytics for Informed Decision-Making		
SSCI 209	Social Science Research Methods	3	
<b>Data Structures and Management (DSM) Requirements</b>			(9)
Choose a minimum of three courses from the following:			9
CS 331	Data Structures and Algorithms	3	

CS 422	Data Mining	3	
ITMD 421	Data Modeling and Applications	3	
ITMD 422	Advanced Database Management	3	
ITMS 428	Database Security	3	
<b>Communicating About Data (CAD) Requirements</b>			(12)
Select a minimum of four courses from the following:			12
COM 421	Technical Communication	3	
COM 424	Document Design	3	
COM 428	Verbal and Visual Communication	3	
EG 425	Computer Graphics for Non-Engineers	3	
ITM 300	Communication in the Workplace	3	
ITM 301	Introduction to Contemporary Operating Systems and Hardware I	3	
ITMD 415	Advanced Software Development	3	
PHIL 351	Science and Values	3	
PHIL 374	Ethics in Computer Science	3	
<b>Capstone Project</b>			(3)
Topic must be approved by the adviser.			3
<b>Mathematics Requirements</b>			(10)
MATH 151	Calculus I		5
MATH 152	Calculus II		5
<b>Computer Science Requirements</b>			(4-6)
Select one of the following:			4-6
CS 115 & CS 116	Object-Oriented Programming I and Object-Oriented Programming II	4	
CS 105 & CS 201	Introduction to Computer Programming and Accelerated Introduction to Computer Science	6	
<b>Natural Sciences Requirements</b>			(11-12)
See IIT Core Curriculum, section D			11-12
<b>Interprofessional Projects (IPRO)</b>			(6)
See IIT Core Curriculum, section E			6
<b>Humanities and Social Sciences Requirements</b>			(21)
See IIT Core Curriculum, sections B and C			21
<b>Free Electives</b>			(30)
Select 30 credit hours			30

**Minimum degree credits required: 127/128**

<sup>1</sup> Topic must be approved by the adviser.

## Bachelor of Science in Applied Analytics Curriculum

		Year 1	
Semester 1	Credit Hours	Semester 2	Credit Hours
Introduction to the Profession <sup>1</sup>	2-3	MATH 152	5
Science Elective	3	CS 116 <sup>2</sup>	2
Science Lab Elective	1	Science Elective	3
CS 115 <sup>2</sup>	2	Social Sciences Elective	3
MATH 151	5	Humanities 200-level Course	3
Free Elective	3		
16-17			16
		Year 2	
Semester 1	Credit Hours	Semester 2	Credit Hours
MATH 251	4	Specialization Course <sup>3</sup>	3
Science Elective	4	Data Structures and Management Elective <sup>4</sup>	3
Specialization Course <sup>3</sup>	3	Communicating about Data Elective <sup>5</sup>	3
Social Sciences Elective (300+)	3	Humanities or Social Sciences Elective	3
Free Elective	3	Free Elective	3
		Free Elective	3
17			18
		Year 3	
Semester 1	Credit Hours	Semester 2	Credit Hours
MATH 474	3	Specialization Course <sup>3</sup>	3
Data Structures and Management Elective <sup>4</sup>	3	Data Structures and Management Elective <sup>4</sup>	3
Communicating about Data Elective <sup>5</sup>	3	I PRO Elective II	3
I PRO Elective I	3	Humanities Elective (300+)	3
Free Elective	3	Free Elective	3
15			15
		Year 4	
Semester 1	Credit Hours	Semester 2	Credit Hours
Specialization Course <sup>3</sup>	3	Capstone Project <sup>6</sup>	3
Communicating about Data Elective <sup>5</sup>	3	Communicating about Data Elective <sup>5</sup>	3
Social Sciences Elective (300+)	3	Humanities Elective (300+)	3
Free Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
15			15

Total Credit Hours: 127-128

<sup>1</sup> Choose from the following courses: BUS 100, LCHS 100, PSYC 100, or SSCI 100.

<sup>2</sup> The CS 115 and CS 116 sequence may be substituted by the CS 105 and CS 201 sequence.

<sup>3</sup> See specialization course options on the Program Requirements tab.

<sup>4</sup> Choose from the following courses: CS 331, CS 422, ITMD 421, ITMD 422, or ITMS 428.

<sup>5</sup> Choose from the following courses: COM 421, COM 424, COM 428, EG 425, ITM 300, ITM 301, ITMD 415, PHIL 351, or PHIL 374.

<sup>6</sup> Topic must be approved by adviser.