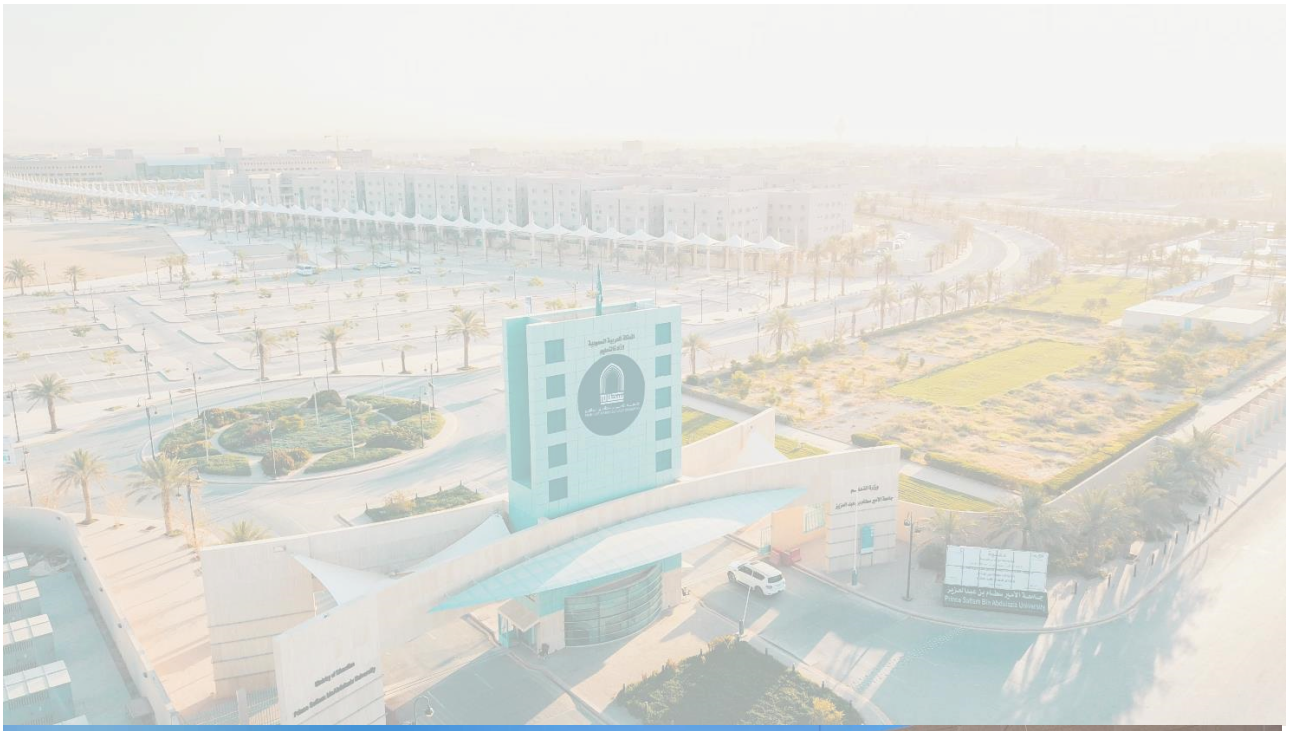
جامعة الأمير سطام بن عبدالعزيز
PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY



Master of Data Science program

برنامج ماجستير علوم البيانات

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Introduction

Welcome, esteemed faculty member. This guide is for new, current, and prospective faculty members to give you a comprehensive understanding of the Master of Data Science program. This guide highlights the policies and procedures to follow as a faculty member of this program. Master of Data Science program is designed to prepare the next generation of experts and leaders in the field of data science. This is one of the distinguished postgraduate programs from Prince Sattam bin Abdulaziz University's College of Computer Engineering and Sciences, started in the academic year 2019-2020. You will find valuable information in this guide. We are committed to fostering a dynamic and supportive environment for our faculty, and we believe this guide will be a valuable tool in achieving that goal.

Program Mission

Equipping students with knowledge and skills in data science, empowering them to contribute to the community and research that utilizes methodologies to tackle challenges.

Program Goals

(a) Acquire knowledge of data science principles encompassing data manipulation, statistical analysis, machine learning, and data visualization.
(b) Solve problems using data science methodologies to address complex real-world challenges across various domains.
(c) Develop a student's professional abilities in implementation and management of data.
(d) Apply the practical, societal, and ethical aspects of data usage and collection.
(e) Prepare students to pursue graduate studies and scientific research in the field of data science.

3- مخرجات تعلم البر مج وسمات الخريجين
3-Program Learning Outcomes and Graduate Attributes

Program Learning Outcomes (PLOs)

The PLOs are classified into three categories: Knowledge (K1, K2), Skills (S1, S2) and Values attributes (V1, V2, V3). These PLOs are as follows:
K1: Recognize theories of statistics, data visualization, computing, and mathematics appropriate to the data science discipline.
K2: Explain how the exceptionally enormous amounts of data collected by modern organizations can be used to review, redesign, and improve processes.
S1: Analyze existing processes based on interviewing, observation, documentation analysis, and other similar methods.
S2: Implement knowledge of computing, statistics, and mathematics appropriate to the discipline. V1: Examine the ethical, professional, and social aspects of Data science and its application.

Graduate Attributes

Graduates who successfully completed the program are expected to have the following attributes:

GA1- Graduates of the program will be able to pursue a career in Data Science. This will help fulfill the demands in the job market for qualified Data Science specialists..

GA2- Graduates of the program will be able to target some of the kingdom's most demanding problems such as health care, security, marketing, etc. through the utilization of their obtained training in problem solving using data-driven approaches.

GA3- The program will help enhance the relationship between PSAU and professionals working in the local information technology industry. This relationship can be of great significance to PSAU, its students, alumni, and faculty.

GA4 Applied projects required in several of the program's courses can be utilized to solve current problems and extended as research publications or entrepreneurship endeavors.

4- شروط القبول للبر مج
4- Program admission requirements

فرص القبول لبرامج متاحة للطلاب والطالبات مرة في العام الدراسي وفقاً لاستيفاء الشروط العامة والخاصة الموضحة أدناه:

شروط اللائحة الموحدة للدراسات العلي ا

- أن يكون المتقدم سعود ي ، أو على منحة رسمية للدراسات العليا إذا كان من غير السعوديين .
- أن يكون المتقدم حاصاً على الشهادة الجامعية من جامعة سعودية أو من جامعة أخرى معترف بها.
- أن يكون حسن السيرة والسلوك ولائقا طبياً .
- أن يقدم تزكيتين علميتين من أساتذة سبق لهم تدريسه .
- موافقة مرجعه على الدراسة إذا كان موظف اً.
- يجوز للقسم المختص أن يشترط لقبول الطالب في مرحلتي الماجستير أو الدكتوراه، اجتياز عدد من المقررات التكميلية من مرحلة سابقة .
- لا يجوز للطالب أن يلتحق ببرنامجين للدراسات العليا في وقت واحد.

شروط الجامعة العامة

- ألا تقل درجة اختبار القدرات العامة للجامعيين عن 60.
- يقبل المبتعثون من موظفي الجامعة أو الجهات الحكومية وفق شروط ومعايير القبول .
- عدد سنوات مرحلة البكالوريوس للمتقدم لا تقل عن أربع سنوات .
- أن يكون الطالب قد حصل على الشهادة الجامعية الأولى عن طريق الدراسة لانتظام .
- المعدل يكون وفق شروط القبول للائحة الموحدة للدراسات العليا لجامعات السعودية وقواعدها التنفيذية بجامعة الأمير سطام بن عبد العزيز .
- معادلة الشهادة الصادرة من خارج المملكة العربية السعودية.
- من يتم ترشيحه للقبول لا يحق له جيل قبوله.

-- ان يكون المتقدم حاصلا على درجة البكالوريوس من جامعة معترف بها، وفي تخصص نظم المعلومات او التخصصات ذات الصلة مثل علوم الحاسب ، هندسة البرمجيات و تقنية المعلومات.

-- حصول المتقدم على درجة ٥ في اختبار الايلتز او ما يعادلة.

-- اجتياز الاختبار التحريري الذي يعده القسم.

-- اجتياز المقابلة الشخصية التي يعقدها القسم.

5- نظام الدراسة للبر مج 5-
Study system for the program

تسير الدراسة في البر مج على نظام المستويات(الفصول)، ويتم جدولة المحاضرات حضوريا خلال الفترات المسائية (3-10م) من أيام الأسبوع الرسمية وذلك وفقاً للتقويم الموحد للجامعة .

تنقسم السنة الدراسية إلى فصلين رئيسين لا تقل مدة كل منهما عن خمسة عشر أسبوعاً ولا تدخل ضمنهما فتر التسجيل والاختبارات، وفصل دراسي صيفي لا تقل مدته عن ثمانية أسابيع تضاعف خلالها المدة المخصصة لكل مقرر (المادة الخامسة والثلاثون من لائحة الدراسات العليا) .

يقوم القسم بسناد تدريس مقررات البر مج إلى أعضاء وعضوات هيئة التدريس من جميع أقسام الكلية وذلك وفقاً للتخصص الدقيق والخبرة(المادة السابعة من لائحة الدراسات العليا).

المدة المقررة للحصول على درجة الماجستير لا تقل عن أربعة فصول دراسية ولا تزيد عن ثمانية فصول دراسية، ولا تحسب الفصول الصيفية ضمن هذه المدة (المادة السادسة والثلاثون من لائحة الدراسات العليا) .

لا يتخرج الطالب إلا بعد اكمال متطلبات الدرجة العلمية، وبمعدل تراكمي لا يقل عن "جيد جداً" (المادة التاسعة والثلاثون من لائحة الدراسات العليا).

يحسب التقديرات التقدير العام عند تخرج الطالب، بناءً على معدله التراكمي في المقررات الدراسية فقط (القواعد التنفيذية للمادة التاسعة والثلاثون من لائحة الدراسات العليا).

6- نظام الاختبارات للبر مج 6-
Exam system for the program

يتم اعداد مسودة الاختبار النهائي للمقرر لتنسيق بين الأساتذ ة المشاركين في تدري س المقرر .

تتم مراجعة مسودة الاختبار النهائي للمقرر بواسطة أحد الزملاء من غير المشاركين في تدريس المقرر (Exam Evaluation Report) .

يتم عرض جميع الاختبارات النهائية للمقررات وفقاً لجدول يضعه منسق البر مج بموافقة القسم.

بعد رصد الدرجات النهائية للمقرر تتم مناقشة النتيجة واعتمادها بواسطة القسم والكلية (استمارة مناقشة نتائج مقرر Course Results (Discussion Form .

بعد اعتماد النتيجة النهائية يشرع أستاذ المقرر في اعداد ملف المقرر والذي يتضمن توصيف المقرر (المعد مسبق عند بداية الفصل)، وتقرير المقرر ومرفقاته من الاستبيا نات وأدوات التحليل(نماذج التطوير والجودة للمقر ر).

يتم إجراء الاختبارات في مقررات الدراسات العليا لنيل درجة الماجستير ورصد التقديرات، وفقاً للائحة الدراسة والاختبارات للمرحلة ا لجامعية الصادرة من مجلس التعليم العالي في جلسته الثانية المعقودة بتاريخ 11 /6 /1416 هـ .

فيما عدا هذا :

- لا يعتبر الطالب ناجحاً في المقرر إلا إذا حصل فيه على تقدير "جيد" على الأقل (المادة الأربعين من لائحة الدراسات العليا) .
- يحدد مجلس القسم درجة الأعمال الفصلية لطلاب الدراسات العليا، بما لا يقل عن 30% ولا يزيد على 60% من الدرجة النهائية للمقرر، مع مراعاة ما ورد في المادة" 26" من لائحة الدراسة والاختبارات للمرحلة الجامعية (القواعد التنفيذية للمادة الأربعين من لائحة الدراسات العليا).
- يجوز للطالب إعادة دراسة أي مقرر رسب فيه مرة واحدة فقط وتدخل النتيجتان في المعدل التراكمي (القواعد التنفيذية للمادة الأربعين من لائحة الدراسات العليا).

7- Study 7-الخطة الدراسية للبر مج
plan of the program

المستوى الأول- First Level

First Semester				
No	**Course Code**	**Course Name**	**Contact Hours**	Credit Hours

1	IS0611	Advanced Data Science	(4,0,0)	4
2	IS0612	Programming in Data Sciences	(2,2,0)	4
3	IS0621	Advanced Topics in Database Systems	(4,0,0)	4
		Total Units	(10,2,0)	12

Second Semester				
No	**Course Code**	**Course Name**	**Contact Hours**	**Credit Hours**
1	IS0631	Data Analysis using Applied Statistics	(4,0,0)	4
2	IS0622	Advanced Data Mining	(2,2,0)	4
3	CS0652	Artificial Intelligence and Deep Learning	(4,0,0)	4
		Total Units	(10,2,0)	12

T ıird Semester				
No	**Course Code**	**Course Name**	**Contact Hours**	**Credit Hours**
1	IS0641	Data Visualization	(4,0,0)	4
2	IS0661	Text Mining	(4,0,0)	4
3	xxx	Elective #1	(3,0,0)	3
		Total Units	(11,0,0)	11

F ıurth Semester				
No	**Course Code**	**Course Name**	**Contact Hours**	**Credit Hours**
1	xxx	Elective #2	(3,0,0)	3
2	IS0671	Capstone Project	(6,0,0)	6
		Total Units	(9,0,0)	9

Elective Courses– المقررات الاختياري ة				
No	**Course Code**	**Title**	**Credit**	**Units**
1	IS0651	Advanced Topics in Information Retrieval	3	(3,0,0)

2	IS0653	Data Science Ethics	3	(3,0,0)
3	CS0654	Big Data Analytics	3	(3,0,0)
4	IS0656	Data Warehousing	3	(3,0,0)
5	IS0657	Business Intelligence	3	(3,0,0)
6	IS0658	Project Management	3	(3,0,0)
7	IS0659	Time Series Analysis and Forecasting	3	(2,0,1)
8	IS0662	Sports Analytics	3	(2,0,1)
المقررات الاختياري ة – Elective Courses				
No	**Course Code**	**Title**	**Credit**	**Units**
9	IS0663	Real-Time Analytics	3	(3,0,0)
10	IS0664	FinTech Analytics	3	(3,0,0)
11	IS0665	Health Informatics	3	(3,0,0)
12	IS0666	Data Science for Startups	3	(3,0,0)
13	IS0667	Decision Support Systems	3	(3,0,0)
14	IS0668	Data Governance	3	(3,0,0)
15	IS0669	Selected Topics in Data Science	3	(3,0,0)

8- Program course descriptions 8- توصيف مقررات البر مج

Course Code	Course Title	Credits	Prerequisite
IS0611	Advanced Data Science	5	

CourseDescription

1. Objectives:

1. Define Data Science and gain the expertise sets desirable to be a data scientist.
2. Understand the use of precise methods for analysis.
3. Identify common approaches used for applicable software to explain certain algorithmic complications for an anticipated dataset.
4. Practice application program interfaces (API) and new tools to snippet the Web and accumulate data.

2. Content:

This course focuses on the theoretical foundations of Data Science. In this course, the steps essential in Data Science (DS) projects are explained. Guidelines on how to plan, manage and implement a successful DS project are discussed. Topics in this course additionally include the business values of DS to organizations, the implication, and concerns of attempting to utilize DS in organizations, and the skills needed to be a successful data scientist.

Course Code	Course Title	Credits	Prerequisite

IS0621	Advanced Topics in Database Systems	4	

CourseDescription

1. Objectives:
   1. The ability to design database systems that will fulfil the pertinent requirements.
   2. Comprehend how to interpret a theoretical data model to a relational model.
   3. Appraise techniques of storing, managing, and probing multifaceted data. 4. Gain an ability to use and understand prevailing database languages.

2. Content:
Active assembly, exploration, and preservation of data is strategic to accomplish success in Data Science projects. In this course, students will acquire knowledge to develop, secure, optimize, and administer database systems. The topics include query processing, implementation, and optimization, data relations, storage and file systems, database backup and recovery, self-tuning database systems, data stream systems, concurrency control protocols, transactions creation and maintenance, relational and non-relational databases, database security, data management problems, and distributed database.

Course Code	Course Title	Credits	Prerequisite
IS0612	Programming for Data Science	5	

CourseDescription

1. Objectives:
   1. Develop relevant programming abilities.
   2. Understand the vital topics and ideologies of data science driven software development.
   3. Learn, describe, and apply basic event-driven programing concepts, evidence, and theories to best use of data.
   4. Able to measure algorithm performance.

2. Content:
Programming is a critical part of data science. While working with datasets, it is principally significant to be capable of writing operational, and well-organized code to help process, clean, organize, consolidate, comprehend, and leverage the data. In this course, students learn the essentials of the programming language Python and study how it can be used to accomplish tasks common in data science projects (e.g. data processing and cleansing). Programming topics covered include the collection of data from various sources, the preprocessing and cleaning of data, and the performing of exploratory analysis on the data. Vital data science libraries in Python such as NumPy and Pandas are learned.

Course Code	Course Title	Credits	Prerequisite
IS0622	Advanced Data Mining	4	IS0612

CourseDescription	
	1. Objectives: 1. Recognize and describe concepts of source and target data sample, and their significance to the applied application of taxonomy and data mining methods. 2. Determine cognizance of the conscientious deliberations tangled in data mining for analyzing various types of data. 3. Apply machine learning concepts and methods. 4. Apply the data mining concepts for aggregating, grouping, association finding, cleansing, feature selection, managing and visualization of complex data. 2. Content: Data mining emphasizes leveraging computational methods to recognize patterns, perform prediction and forecasting, and discover knowledge from datasets. In this course, students will study crucial algorithms for selecting and categorizing data, data visualization techniques. Additionally, students learn how to apply machine learning solutions. Data mining algorithms essential for knowledge discovery such as association & sequence rules discovery, memory-based reasoning, clustering, classification, and regression decision trees are covered. The technical contents of this course also include providing an overview of data warehousing and on-line analytical processing (OLAP).

Course Code	Course Title	Credits	Prerequisite
IS0631	Data Analysis using Applied Statistics	5	IS0612

CourseDescription	
	1. Objectives: 1. Learn to conduct statistical analysis on sample dataset. 2. Demonstrate understanding to evaluate analytically the diverse range of complex data sets. 3. Be able to demonstrate understanding of interpreting results to apply applicable statistical techniques. 4. Quantify association of appropriate statistical outcomes and report them effectively. 2. Content: Data analysis is an important step in any data science project. This course offers a firm basis in statistical data analysis techniques and the philosophies of statistical methods. This include learning how hypotheses can be formulated and tested using several statistical tests such as chi-square test, paired T-test, the analysis of variance test (ANOVA), linear and logistic regression, and Wilcoxon rank-sum test; how research questions can be generated and adequately answered to form a research finding. Topics also include data assessment methods, basic data visualization techniques, and probability concepts. Common issues related to data analysis such Type I and Type II errors, dirty data, determination of statistical significance of results, data sampling issues are also covered.

Course Code	Course Title	Credits	Prerequisite
CS0652	Artificial Intelligence and Deep Learning	5	IS0612

CourseDescription	1. Objectives: 1. Understand the predominant procedures used in deep learning and artificial intelligence. 2. Analyze the algorithms related to reasoning, machine learning, and language processing. 3. Explore different paradigms to implement common machine learning methods focusing on different artificial intelligence techniques. 2. Content: The course covers the foundations, theories, approaches, and applications of Artificial Intelligence (AI) and focuses on deep learning, a branch of AI concerned with the creation and deployment of advanced neural networks. Deep learning algorithms, tools, methods, and techniques are studied and applied.

Course Code	Course Title	Credits	Prerequisite
IS0661	Text Mining	5	IS0612

CourseDescription	**1. Objectives:** 1. Establish an essential understanding of models (information categorization, information extraction, building crawlers for data gathering and sentiment analysis), and issues related to text mining; 2. Design and develop a necessary text mining system for examining large pools of documents; 3. Be able to develop actionable insights through the results of analyses. **2. Content:** This course provides an overview of the methods and applications of text mining and highlights the unique challenges of mining unstructured text data. Topics covered include text pre-processing and cleaning, vector space representations, part-of-speech tagging, document classification and clustering, sentiment analysis, text summarization and topic models.

Course Code	Course Title	Credits	Prerequisite
IS0641	Data Visualization	4	IS0612

CourseDescription	1. Objectives: 1. Recognize the fundamentals of data visualization. 2. Understand the important algorithms used in data visualization. 3. Apply methods for evaluating supervised/unsupervised learning for temporal analysis applicable to data science. 4. Understand relevant insights hidden in data through visual analytics with various datasets. 2. Content: Properly visualization relevant aspects and findings is a crucial phase in any Data Science project. In this course, principles of data visualization, techniques and methods needed to provide clear illustrations of data, and data visualization guidelines are covered. Specific techniques to display certain types of data such as text or time series data are also covered. Students get practical experience on how to employ and evaluate data visualization software tools and programming libraries, and learn the skills needed to convert raw datasets into meaningful, interactive, dynamic, and insightful graphical dashboards

Course Code	Course Title	Credits	Prerequisite
IS0655	Web and Cloud Computing	5	IS0612

CourseDescription	1. Objectives: 1. Recognize different theories related to cloud computing technologies and models (IaaS, PaaS, SaaS) 2. Be familiar with different CPU, memory and input/output virtualization methods that aid in offering software, computation and storage services on the cloud. 3. Articulate the suitable cloud computing solutions as per application requirements. 4. Analyze and apply various cloud programming models. 2. Content: The exponential evolution of data magnitude in academia, enterprises and social media has prompted the broader use of cloud computing services. This course offers a graduate-level wide-ranging outline to cloud computing with a prominence on cutting-edge data science topics. In this course, students test the most significant APIs provided and used by the major public cloud providers. Students learn to handle significant topics like load assessment, caching, instruction level parallelism, vector instructions, parallel computing and disseminated transactions. The academic knowledge, applied sessions and projects aim to construct their abilities to develop enterprise applications by means of cloud platforms and tools.

Course Code	Course Title	Credits	Prerequisite
IS0671	Capstone Project 1	3	IS0612

CourseDescription	1. Objectives: Establish critical thinking to effectively plan strategies for development of data science projects. Exhibit a comprehensive technical knowledge, skills and attitudes to fulfill data science project final outcome. 2. Content: In this course, students work on a Data Science project under the supervision of a faculty member. The primary objective of this course is to allow students to apply the knowledge learned in the program to tackle a real-world problem in a full Data Science project.

Course Code	Course Title	Credits	Prerequisite
IS0672	Capstone Project - 2	3	IS0612

CourseDescription	1. Objectives: 3. Establish critical thinking to effectively plan strategies for development of data science projects. 4. Exhibit a comprehensive technical knowledge, skills, and attitudes to fulfill data science project outcome. 2. Content: In this course, students work on a Data Science project under the supervision of a faculty member. The primary objective of this course is to allow students to apply the knowledge learned in the program to tackle a real-world problem in a full Data Science project.

Course Code	Course Title	Credits	Prerequisite
IS0651	Advanced Topics in Information Retrieval	5	

CourseDescription

1. Objectives:
    1. Understand and adopt information retrieval principles to discover relevant information in complex data sets.
    2. Explore the boundaries of dissimilar information retrieval methods.
    3. Analyze information retrieval processes to evaluate the performance of retrieval systems.
    4. Learn the customary techniques for data indexing and retrieval.
    5.

2. Content:
Learn Information Retrieval (IR) theories and systems, and selected topics in IR such as search engines design and architecture, evaluation criteria for information retrieval systems, language models, relevance feedback, and the processing, indexing, querying, management, sorting of bibliographic collections, and textual documents including hypertext documents available on the internet.

Course Code	Course Title	Credits	Prerequisite
IS0653	Data Science Ethics	5	IS0611

CourseDescription

1. Objectives:
    1. Understand applicable standards, ethical, social concerns, and legal necessities to the specialized practice of data science.
    2. Apply privacy-aware methods to diminish harm associated with data-driven enterprise processes.
    3. Employ cutting edge tools and technologies for privacy assessment/audit of data-intensive projects.

2. Content:
This course explores ethical issues related to the management of data in organizations and considers the necessity for legal, security and privacy protection properties when dealing with data.

Course Code	Course Title	Credits	Prerequisite
CS0654	Big Data Analytics	5	IS0612

CourseDescription	1. Objectives: 1. Understand Big Data to identify the characteristics of datasets. 2. Analyze Big Data basic methods and algorithms to solve real-world problems. 3. Design, develop and execute effective big data analytical models using cutting edge technologies such as Hadoop. 2. Content: Due to recent computational advances, datasets of large volume now exist. Examples of such sources of datasets are social media entries, Internet of Things devices and sensors, and online videos. Data Science projects often need to be applied on such large datasets to produce knowledge and insights. To manage the size, rapidity, and diversity of data, it is required to depend on several computational methods that emphasis on scaling-out data. This course covers how to process, analyze and manage large datasets in a manner that empowers real-time decision making and logical discovery at large scale. Vital concepts related to big data such the Hadoop ecosystem, distributed file systems, and parallel and distributed computing are covered.

Course Code	Course Title	Credits	Prerequisite
IS0656	Data Warehousing	5	IS0621

CourseDescription	1. Objectives: 1. Understand the important concepts, lifecycle and the techniques of data warehouse modeling 2. Design and implement data warehousing solution to a given problem 3. Discover and remove missing values, noise and outliers in presented data 4. Learn the future of the data warehouse 2. Content: Data warehouses are information systems used to leverage data available in organizations. This course covers the foundations and principles of these systems and provides details on how to design, integrate, and operationalize data warehouses to support organizations.

Course Code	Course Title	Credits	Prerequisite
IS0657	Business Intelligence	5	

CourseDescription	1. Objectives: 1. Understand the basics, classifications, and abilities of data analytics, DSS, and BI; 2. Employ technological architecture of BI modeling, procedures and tools; 3. Learn data management and issues related to data quality; 4. Recognize the key ethical and legitimate concerns of analytics. 2. Content: This course explores Business Intelligence (BI) as a wide-ranging category of concepts, tools and technologies for aggregating, evaluating, leveraging, and sharing of data to benefit enterprise workers make informed decisions that are based on accurate and actionable intelligence. The course also covers strategies and methods that empower data-driven decision making, encourage data utilization for competitive advantage, and accept analytics as an ongoing process that contributes to the success of organizations.

Course Code	Course Title	Credits	Prerequisite

IS0658	Project Management	5	

CourseDescription

1. Objectives:
    1. Understand the foundations of project management lifecycle and its need for project management in the modern organization.
    2. Initiate projects, including project selection and defining project scope.
    3. Estimate and Manage project resources, including human resources, capital equipment, and time.
    4. Manage project risk, including the identification of project risk, and the techniques for ensuring project risk is controlled.
    5. Manage project execution, including monitoring project progress and managing project change (scope creep), and appropriately documenting, communicating project status and closures.

2. Content:
This course empowers students to effectively and productively accomplish and manage a data science project. It is methodologically focused and describes cross-industry processes and bestpractices for successful management of projects.

Course Code	Course Title	Credits	Prerequisite
IS0659	Time Series Analysis and Forecasting	5	

CourseDescription

1. Objectives:
    1. Understand the essential benefits and need of anticipation in diverse and evolving dimensions (i.e. social, business, cultural)
    2. Recognize the role of transformations for time series to concisely summarize analytical outcome.
    3. Know how to use applicable software.
    4. Gain the ability to improve prediction with superior statistical models based on statistical analysis.

2. Content:
Time Series Analysis has widespread applicability in economic and financial fields. This course enables students to learn how to perceive patterns in time series data, model this data, and make predictions based on those models.

Course Code	Course Title	Credits	Prerequisite
IS0662	Sports Analytics	5	

CourseDescription	1. Objectives: 1. Be able to illuminate, discuss, and examine essential theories of sport management. 2. Be able to implement and report empirical analysis of data collected using sports technology. 3. Evaluate data aggregation technology and novelties in order to make cognizant assessments and resolve multifarious problems. 2. Content: Sports analytics focuses on how data can be used to improve the performances of athletes and sports teams. This class explores the foundations of sports analytics and demonstrates the effectiveness of analytics in the improvement of training and performance of athletes.

Course Code	Course Title	Credits	Prerequisite
IS0663	Real-Time Analytics	5	

CourseDescription	1. Objectives: 1. Learn to aggregate process and transform relevant data. 2. Formulate and use appropriate models (mathematical and statistical) to translate data into clear, actionable insights. 3. Construe data findings effectively in visual and formats. 2. Content: This course covers architectures and technologies at the basis of real-time analytics. These technologies enable scalable administration and real-time handling of gigantic and continuous extents of data from sources such as sensors and social media streams.

Course Code	Course Title	Credits	Prerequisite
IS0664	FinTech Analytics	5	

CourseDescription	1. Objectives: 1. Gain knowledge and skills to apply Fintech principles to complex data driven problems. 2. Learn to aggregate process and transform relevant data. 3. Be equipped with the necessary skills to formulate and use appropriate models to translate financial data into clear, actionable insights. 4. Recognize the method to commence when given an analytics project in financial services. 5. Be able to conduct exploratory data analysis to establish interactive graph visualization. 2. Content: This course emphasizes on the opportunities and methods that relies on data to improve systems and applications in the financial sector. Learn how to discover insights, and develop data-driven solutions specific for Financial Information Systems.

Course Code	Course Title	Credits	Prerequisite
IS0665	Health Informatics	5	

CourseDescription	
	1. Objectives: 1. Acquire basic skills and knowledge to understand the problems and challenges that health informatics addresses. 2. Implement design procedures and apply statistical models to examine data. 3. Apply knowledge to evaluate performance (e.g., goal/performance indicators, systems effectiveness). 4. Understand health information standards. 2. Content: In healthcare, enormous volumes of diverse health data have become accessible in numerous healthcare establishments (providers, financiers, suppliers, pharmaceuticals). Health informatics is the study of how computational methods can be used to improve solutions and outcomes in the healthcare industry. This course covers recent development, analytical approaches, and potential opportunities in the healthcare industry.

Course Code	Course Title	Credits	Prerequisite
IS0666	Data Science for Startups	5	

CourseDescription	
	1. Objectives: 1. Be acquainted with a modernism attitude on entrepreneurship. 2. Learn creative and technical expertise to analyze massive amounts of data helpful for informed decision making. 3. Evaluate the performance of data driven competing models. 4. Create innovative functions and use venture control flow. 2. Content: This course explains successful strategies and practices for founding and running startups, and then discusses the opportunities for using Data Science as the foundation for new ventures. The course enables students to plan and start new projects that have the potential of being extended as funded startups.

Course Code	Course Title	Credits	Prerequisite
IS0667	Advanced Decision Support Systems	5	

CourseDescription	
	1. Objectives: 1. Learn aptitude to ascertain and select applicable decision support systems to achieve desired functional requirements. 2. Gain knowledge and understanding to estimate the impact DSS have on organizations and their process. 3. Become an expert user to design, develop, and implement applicable DSS. 2.Content: This course delivers an outline on Decision Support Systems (DSS). Topics include: the policy principles behind DSS, scientific fundamentals of DSS, and applications of DSS. Students learn how to classify and chose applicable DSS that is suitable for the development of state-of-the-art enterprise solutions useful for the enhancement of data-driven enterprise decision making.

Course Code	Course Title	Credits	Prerequisite

IS0668	Data Governance	5	

CourseDescription

1. Objectives:
    1. Understand the fundamental concepts of Data Governance.
    2. Learn how data governance benchmarks can be implemented by integrating best practices.
    3. Be able to review relative importance of data governance standards.
    4. Implement corrective actions to rectify data governance issues.

2. Content:
Data governance is the study of rules, standards, methods, people, and technology vital to the maintenance of high-quality data in organizations. This course focuses on how a discerning data governance can benefit the regular superiority, accessibility, reliability, and usability of organizational data and how to secure, maintain, and manage data in way that ensure integrity and trust in data.

Course Code	Course Title	Credits	Prerequisite
IS0669	Selected Topics in Data Science	5	

CourseDescription

1. Objectives:
1. Learn a broad insight, understanding & intuition of the relevant technologies and methods in Data Science;
2. Identify and classify emerging data science relevant technologies & standards.

2. Content:
Explore a selected topic related to Data Science not covered in other courses and delve into its theoretical foundations, methodological breakthroughs, and recent developments in the topic.

Kingdom of Saudi Arabia
Ministry of Education
Prince Sattam Bin Abdulaziz

جامعة الأمير سطام بن عبدالعزيز
PRINCE SATTAM BIN ABDULAZIZ UNIVERSITY

Exam Evaluation Report

An electronic copy, **Or**, a signed hard copy of this report should be sent to the Course Coordinator to carry out appropriate changes. The Course Coordinator should also keep a copy of this report in the course file

Section A: General Information			
Program Name		***Year/Semester***	
Course Code		***Course Title***	
Exam Date		***Number of Students***	

Course Coordinator		***Instructor Name(s)***	
Reviewer Name			

Section B: Evaluation of Exam		
Note that: 4= Excellent*, 3=Good, 2=Needs Improvement, 1= Deficient*		
Criteria	**Score**	**Comments**
1. The questions are of adequate standard and are designed well to check the course learning outcomes (CLOs) appropriately		
2. There is a diversity in the exam questions (objective - essay)		
3. The Exam evaluates different levels of Lower thinking skills - Memorization, Comprehension and Application skills		
4. The Exam evaluates different levels of Higher thinking skills - Analysis, Synthesis and Evaluation skills		
5. Questions cover most of course topics		
6. Questions are clear and adequate for students level		
7. Questions are free of spelling or grammatical errors		
8. Marks are distributed fairly on questions		
9. Questions are adequate for exam time		
10. Answer of questions are clear and not overlapping with other answers		

Section C: Comments			
Any other comments			
Please ensure that you sign and date below, if sending a hard copy of this report			
Signed		Date	

استمارة مناقشة نتائج مق رر

Course Results Discussion Form

1. Course Information

Course Code-Title	
Semester-Year	
Indicate Other Sections (If any)	
Instructor Name	

2. Result Summary

Status of Students		Status of Students	Number of Students
Enrolled		Examined	
Passed		Failed	
Withdrawal		Deprived	

3. Distribution of Grades

Grade	Passed		A+	A	B+	B	C+	C	D+	D	F
	No	Ratio									
Number											

4. Chart of Grades

5. Records of student results (from e-gate)

6. Committee Comments on the Results

Name:	Signature:	Date:

7. Instructor Feedback on the Comments

Signature:	Date:

8. Department Council Recommendations (Chairman)

Name:	Signature:	Date:

9. College Council Approval

College Dean	
Signature:	Date:

Contacts and Links	
Program Details	https://cces.psau.edu.sa/en/dept-page/Department-ofInformation-Systems/8646
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