خطة المساق الدراسي PLAN COURSE

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| **FIRST: COURSE IDENTIFICATION** |  |  |  | **أولا : تعريف المساق** |
| **College & Department** |  |  |  |  |  |  | **الكلية والقسم** |
| **:College** | Information Technology | تكنولوجيا المعلومات | **الكلية** |
| **Department** | Data Science and Artificial Intelligence | علم البيانات و الذكاء الاصطناعي | **القسم** |
| **Academic Year** | 2024/2025 | 2024/2025 | **السنة الدراسية** |
| **Academic Semester** | 1st semester | الاول | **الفصل الدراسي** |
| **Course details** |  |  |  |  |  |  | **تفاصيل المساق** |
| **Course Title** | Data Mining | تنقيب البيانات | **اسم المساق** |
| **Course Code** | 074135400 | 074135400 | **رمز المساق** |
| **Course Type** | Lecture | محاضرة | **نوع المساق** |
| **Credit Hours** | 3 | 3 | **الساعات المعتمدة** |
| **Pre-requisite** | 750260 | 750260 | **المتطلب السابق** |
| ☒ **وجاهي** ☐ **الكتروني كامل** ☐ **مدمج** | **آلية تدريس المساق** |
| **Teaching Method** | ☒ **Face-to-Face** ☐ **Online** ☐ **Blended** |
| **Instructor Contact Information** |  |  |  |  |  | **المدرس** |
| **Name** | Aya Adnan Migdady | ايه عدنان مقدادي | **اسم المدرس** |
| **Office No.** | IT-327 | IT-327 | **رقم المكتب** |
| **Tel (Ext)** | -- | -- | **الرقم الداخلي** |
| **E-mail** | amiqdady@ philadelphia.edu.jo | amiqdady@ philadelphia.edu.jo | **البريد الإلكتروني** |
| **Office Hours** | S,M: 9:05-10:35S,T: 11–12:00 | S,M: 9:05-11:35S,T: 11–12:00 | **الساعات المكتبية** |
| **وقت المحاضرة Times Class** | **وقت البدء Time Start** | **وقت النهاية Time End** | **اليوم Day** | **المبنى Building** | **رقم القاعة No. Room** |
| **09:45-11:00** | **09:45** | **11:00** | **Sunday, Tuesday** | **7** | **114** |
| **Course Materials** |  |  |  |  |  |  | **مصادر المساق** |
| **Textbook** |  |  |  |  |  |  | **الكتاب المقرر** |
| 1. Introduction to Data Mining, Pang-Ning Tan, Michael Steinbach, Anuj Karpatne, and Vipin Kumar, 2nd Edition, Main Book, 2018 |
| **Course References, Readings and Learning Resources** |  |  | **المراجع والقراءات ومصادر تعلم المساق:** |
| 1. Han, J. and Kamber, M., Data Mining: Concepts and Techniques, Morgan Kaufmann, 2012.
2. Tan, P-N, Steinbach, M., Kumar, V. Introduction to Data Mining. Addison Wesley, 2006.
 |
| **SECOND: COURSE OVERVIEW/DESCRIPTION** |  |  |  |  | **ثانياً: معلومات المساق** |
| **Course Description** |  |  |  |  |  |  | **وصف المساق** |
| In this course, students will learn about the advances in computer information systems, machine learning, statistics, intelligent systems and methodologies for the automatic discovery of knowledge from large high dimensional databases. The course covers basic concepts and techniques, including data cleaning, clustering, classification, association rules mining. Finally, the course surveys data mining tools and applications. |

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| **أهداف المساق Objectives Course** |
| **مع نهاية هذا المساق يجب أن يكون الطالب قادراً على to able be should students course, this of end the By** |
|  | **CO1.** | Provide the student with an understanding of the concepts of data mining. | **الهدف :1** |  |
| **CO2.** | Study the dimensional modeling technique for designing a data mining. | **الهدف :2** |
| **CO3.** |  Explain the knowledge discovery process | **الهدف :3** |
| **CO4.** |  Describe the data mining tasks and study their well-known techniques | **الهدف :4** |
| **CO5.** |  Develop an understanding of the role played by knowledge in a diverse range of intelligent systems. | **الهدف :5** |
| **CO6.** |  Test real data sets using Python programming language. | **الهدف :6** |
|  | **Program Intended Learning Outcomes (PILO):** | **مخرجات التعلم المستهدفة للبرنامج** |  |
| **Knowledge & understanding** | **PILO1** | **Remembering** Recognize the essential mathematics relevant to data mining algorithms, the different tools available to the data miner, like Orange, python, and other tools. | **:1ب م** | **والفهم المعرفة** |
| **PILO2** | **Understanding**: Outline the principles of various current applications, and research areas of the data mining including artificial intelligence, machine learning, and data science.  | **:2ب م** |
| **Professional Skills** | **PILO3** | Plan and undertake a major individual / group project in the areas of data mining, and develop and deliver coherent and structured verbal and written technical reports, in addition prepare technical presentations suitable for the time, place, and audience. | **:3ب م** | **المهارات** |
| **PILO4** | Ability to design and implement a small a project using an appropriate language, and use appropriate computer-based tools. | **:4ب م** |
| **PILO5** | **Evaluating**: Assesses and selects appropriate tools and techniquesfor addressing the impacts of data mining. | **:5ب م** |
| **PILO6** | **Communicating**: Articulates ideas clearly and effectively, both verbally and in writing, and prepares coherent and organizedtechnical reports. | **:6ب م** |  |
| **Competences** | **PILO7** | **Self-Development**: Plans for self-directed learning and suggestsresources and online courses to enhance preparedness for professional certification. | **:7ب م** | **الكفايات** |
| **PILO8** | **Collaboration**: Actively participates as a member or leader in a team, demonstrating the ability to work independently and collaboratively. | **:8ب م** |
| **PILO9** | **Critical Thinking**: Comply, in force and evaluate professional and ethical responsibilities in data mining practice. | **:9ب م** |
| **Course Intended Learning Outcomes (CILO)** | **مخرجات التعلم المستهدفة للمساق** |
| **Successful completion of the course should lead** **to the following outcomes:**  | **في نهاية المساق بنجاح يجب أن يكتسب الطالب المخرجات****التالية:** |

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|  | **Knowledge & understanding** | **CILO1** | Understand the principles and techniques related to data mining and information retrieval. | **:1 م م** | **والفهم المعرفة** |  |
| **CILO2** | Understand the application of data mining in a businesscontext. | **:2 م م** |
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| **Professional Skills** | **CILO3** | Analyze a wide range of problems in data mining.  | **:3 م م** | **المهارات** |
| **CILO4** | Provide solutions through suitable machine learning algorithms, and other appropriate methods. | **:4 م م** |
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| **Competences** | **CILO5** | Design and implement a software model with specific output knowledge.  | **:5 م م** | **الكفايات** |
| **CILO6** | Identify a range of solutions and critically evaluate and justify proposed design solutions. | **:6 م م** |
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| **Mapping Course Learning Outcomes CILOs to Program Learning Outcomes PILOs** |  |  | **موائمة مخرجات التعلم للمساق CILOs مع مخرجات التعلم للبرنامج PILOs** |
|  | **PILO 1** | **PILO 2** | **PILO 3** | **PILO 4** | **PILO 5** | **PILO 6** | **PILO 7** | **PILO 8** | **PILO 9** |  |  |  |
| **CILO1** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO2** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO3** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO4** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO5** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO6** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |
| **CILO7** | ☐ | ☐ | ☐ | ☒ | ☐ | ☐ | ☒ | ☐ | ☐ |  |  |  |

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| **Topic Outline / Schedule (Syllabus)** |  | **مخطط المساق (الموضوعات)** |

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| **األسبوع Week** | **مواضيع المساق / الفعاليات Topics/Events Course** | **القراءات****)المراجع( Readings (Reference) رقم** | **مخرجات رمز المساق CILO** | **مخرجات رمز****البرنامج PILO** | **أنشطة التدريس والتعلم Learning & Teaching Activity** | **الوقت/الموعد Duration/ Deadlines** |
| **1.** | Introduction | **Text Book Chapter 1** | **1, 2** | **2** | Theoretical lectures andpresentations | 3-Hours |
| **2.** | Introduction | **Text Book Chapter 1** | **1, 2** | **2** | Theoretical lectures and presentations | 3-Hours |
| **3.** | Statistics and Features Selection | **Text Book Chapter 2** | **1, 2** | **1, 2** | Theoretical lectures and presentations | 3-Hours |
| **4.** | Data Preprocessing | **Text Book Chapter 2** | **1, 2** | **1, 2** | Theoretical lectures and presentations | 3-Hours |
| **5.** | Data Preprocessing | **Text Book Chapter 2** | **1, 2** | **1, 2** | Theoretical lectures and presentations | 3-Hours |
| **6.** | Classification Algorithms | **Text Book Ch3, Ch4** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **7.** | Classification Algorithms | **Text Book Ch3, Ch4** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **8.** | Classification Algorithms | **Text Book Ch3, Ch4** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **9.** | Mid Exam | **-** | **-** | **-** | - | - |
| **10.** | Classification Algorithms | **Text Book Chapter 7** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **11.** | Clustering Algorithms | **Text Book Chapter 7** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **12.** | Clustering Algorithms | **Text Book Chapter 7** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **13.** | Clustering Algorithms | **Text Book Chapter 17** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **14.** | Association Rules Mining | **Text Book Chapter 5** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **15.** | Association Rules Mining | **Text Book Chapter 5** | **3-6** | **3, 4, 5** | Theoretical lectures and presentations | 3-Hours |
| **16.** | Revision & lessonslearned | **-** | **1-7** | **1-6** | Theoretical lectures andpresentations | 3-Hours |
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|  | **ASSESSMANTTOOLS** | أ**ساليب التقييم**  |  |
| Write assessment tools that will be used to test students’ ability to understand the course material and gain the skills and competencies stated in learning outcomes | أكتب أساليب التقييم التي سيتم استخدامها لتقييم قدرة الطلبة على استيعاب مواد المساق واكتساب المهارات والكفايات المنصوص عليها في مخرجات التعلم |  |
|  | **وسيلة التقييم TOOLS ASSESSMENT** | **النوع )تكويني أو تجميعي( (Informative Type Summative) and** | **رمز مخرجات المساق المستهدفة CILO** | **العلامه Grade** | **النسبة****%****Percentage** |  |
|  | **المشاركة (Participation)** |  | **Informative** | **1-7** | **5** | **5%** |
|  | **تقرير (Report)** |  | **-** | **-** | **-** | **-** |
|  | **المقاالت المختصرة (Essays)** |  | **-** | **-** | **-** | **-** |
|  | **(Assignments)واجبات** |  | **Summative** | **1-7** | **5** | **5%** |
|  | **االختبارات الشفويةexams) (Oral** |  | **Informative** | **1-7** | **-** | **-** |
|  | **دراسة الحالة exams) study (Case** |  | **Informative** | **1-7** | **-** | **-** |
|  | **امتحانات قصيرة(Quizzes)** |  | **Summative** | **1-7** | **5** | **5%** |
|  | **التجارب العملية ) (Experiments** |  | **-** | **-** | **-** | **-** |
|  | **مشاريع )Project(** |  | **-** | **-** | **15** | **15%** |
|  |  **زيارات ميدانيةTrip)** (**Field** | **-** | **-** | **-** | **-** |
|  | **أخرى (يرجى التحديد) Other****(specify)** |  | **-** | **-** | **-** | **-** |
|  | **امتحان منتصف الفصلExam) (Mid** |  | **Summative** | **1, 2, 3, 4, 5** | **30** | **30%** |
|  | **االمتحان النهائيExam) (Final** |  | **Summative** | **1-12** | **40** | **40%** |
|  | **المجموعMARKS) (TOTAL** |  |  | **100** | **100%** |

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| **THIRD: COURSE POLICIES AND INSTRUCTIONS** | **ثالثاً: التعليمات والإرشادات** |

الحضور والمواظبة rules Attendance

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| Attendance and participation are critical, and the regular university norms will apply. A student is not permitted to be absent for more than 15% of the total number of credit hours given to any course. Each class's attendance will be tracked. A 10% absence will result in a first written notice. If a student misses 15% of the class, the course is dropped, and the student is not entitled to sit for the final exam. If a student has any special circumstances (medical or personal), he or she is advised to discuss this with the instructor, and documented evidence will be requestedto remove any absences from his or her attendance records. | يعتبر حضور الطلبة للمحاضرات ومشاركتهم بها في غاية الأهمية، وسيتم تطبيق القواعد المعمول بها في الجامعة بهذا الخصوص. يتم تسجيل حضور الطلبة في كل محاضرة. وصول نسبة غياب الطالب إلى %10 ستتسبب في تلقيه إنذاراً أولياً خطياً. في حال وصول نسبة الغيابات إلى %15، يتم حرمان الطالب من المساق ولن يسمح للطالب بالتقدم مع لامتحان النهائي في المساق. في حال تعرض الطالب إلى أي ظروف قاهرة (مرض أو ظروف شخصية)، يجدر بالطالب التواصل المدرس ومناقشة هذا الظرف وإظهار دليل خطي يبرر الظرف ليتم الغاءالغياب من سجل الغياب. |

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| **Policies and instructions** | **السياسات والإرشادات** |

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| * Students must read and follow the internal bylaws of Philadelphia University in relation to student conduct bylaws.
* Students with special needs are highly recommended to register their cases with a valid doctor's report in the student affairs department.
* Students with special needs shall be subject to special care in coordination with the head of department as per internationally recognized and benchmarked considerations and services.
* The student must seek permission before making any interventions on the subject of the lecture.
* The student must listen to and respect the opinions of others.
* The student should not obstruct the course of the lecture.
* Students should not hesitate to ask questions to the instructor.
* Students should not use their mobile phones during the lecture.
* Students are strongly encouraged to contact their instructor if they have course-related questions during office hours.
* Students are recommended to contact their instructor using the LMS.
* Cheating and Plagiarism are prohibited.
 |  يجب على الطالب أن يقوم بقراءة واتباع اللوائح الداخلية الخاصة بجامعة فيلادلفيا المتعلقة بلوائح سلوك الطلبة.  • ينصح الطلبة من ذوي الاحتياجات الخاصة أن يقوموا بتسجيل حالتهم لدى شؤون الطلبة من خلال تقرير طبي حسب الأصول وساري المفعول. • يخضع الطلبة من ذوي الاحتياجات الخاصة إلى رعاية خاصة وذلك بالتنسيق مع رئيس القسم وفقاً. للمعايير الخاصة بذلك والمعترف بها دولياً  • على الطالب الاستئذان قبل القيام بأي مداخلات على موضوع المحاضرة. • على الطالب الاستماع واحترام الرأي الآخر. • على الطالب عدم إعاقة سير المحاضرة.  • على الطالب عدم التردد في طرح الأسئلة على مدرس المادة والتواصل مع المدرس خلال الساعات المكتبية او من خلال نظام التعليم الإلكتروني. • على الطالب عدم استخدام الهاتف النقال أثناء المحاضرة. • على الطالب عدم التردد في التواصل مع المدرس خلال الساعات المكتبية او من خلال نظام التعليم الإلكتروني. • غير مسموح الغش والانتحال على الطلاق. |

**منسق المساق**  **COORDINATOR COURSE**

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| **منسق المساق Course Coordinator:** | **Aya Adnan Migdady** | **رئيس القسم Head: Department** | **Dr. Fadi Mohammad Al-Shimat** |
| **التاريخ****Date:** | **12/10/2024** | **التاريخ****Date::** |  |
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