The University of Jordan

Accreditation & Quality Assurance Center

COURSE Syllabus

1	Course title	**Social Networks Analysis**
2	Course number	**1904730**
3	**Credit hours (theory, practical)**	3 theory
	Contact hours (theory, practical)	3 theory
4	Prerequisites/corequisites	**-----**
5	Program title	**Master of Web Intelligence**
6	Program code	**4**
7	Awarding institution	**The University of Jordan**
8	**Faculty**	**King Abdullah II School for Information Technology**
9	Department	Business Information Technology Department
10	Level of course	**1st Year/2nd Year**
11	Year of study and semester (s)	**Any**
12	Final Qualification	**Master(Msc)**
13	Other department (s) involved in teaching the course	**none**
14	Language of Instruction	**English**
15	Date of production/revision	**production : 1-9-2015/ revision :18-4-2016**
16	Required/ Elective	**Elective**

17. Course Coordinator:

Dr. Ibrahim Aljarah

Office numbers
12-1 Sunday, Tuesday, Wednesday
22637
i.aljarah@ju.edu.jo

18. Other instructors:

None

19. Course Description:

This course gives a basic understanding of what social network analysis is and how it can be applied. The course will cover recent research on the structure and analysis of large social and information networks and on models and algorithms that abstract their basic properties. In this course student will learn about social networks structure and evolution, and how to practically analyze large scale network data and how to reason about it. Topics covered in this course include methods for social network analysis, graph mining, link analysis and network community detection, information propagation on the web, and connections with work in the social sciences and economics.

Objectives:

- **Discussing state-of-the-art research results in social network analysis**
- **Conveying the basic ideas and advanced technologies in social network analysis**
- **Introducing some social network analysis packages/tools**

Intended Learning Outcomes:

Upon completion of the course, students will be able to:

- **A1. Understand the basic concepts and principles of different theoretical models of the social networks analysis.**
- **A2. Understand the concepts of network models, network measures, graph representation, graph traversal algorithms, graph mining essentials.**
- **A3. Be able to analyze, and evaluate social communities.**
- **A4. Use social network analysis in behavior analytics, and recommendations systems.**

21. Topic Outline and Schedule:

Topic	Week	Instructor	Achieved ILOs	Evaluation Methods	Reference
Introduction to Social Network Analysis (SNA): definition and origin, core features of the SNA, Foundation of social network analysis	1	Dr. Ibrahim Aljarah	A1	Exams, Assignments, Oral questions	Text books, Research papers
Graph theory: graph basics, graph representation, types of graph, and graph algorithms	2-3	Dr. Ibrahim Aljarah	A2	=	=
Networks: nodes, edges, adjacency matrix, one and two-mode networks, node degree, centrality, betweenness, reach, cliques, and paths	4-5	Dr. Ibrahim Aljarah	A2	=	=
Network models: connected components, giant component, diameter, searching algorithms	6	Dr. Ibrahim Aljarah	A2	=	=
Graph Mining for Social Network Analysis: Community detection, Clustering, Community structure, Modularity, Overlapping communities	7-8	Dr. Ibrahim Aljarah	A3	=	=
Midterm Exam	9	Dr. Ibrahim Aljarah	A1+A2+A3	=	=
Predictive modeling: link/attribute prediction. Influence in Social networks	10	Dr. Ibrahim Aljarah	A4	=	=
Sentiment Analysis, Recommendation in Social Networks: Collaborative Filtering, and Contentbased Recommendation Systems	11	Dr. Ibrahim Aljarah	A4	=	=
Social network analysis case studies: Twitter, Facebook, Last.fm, DBLP, and IMDB	12	Dr. Ibrahim Aljarah	A4	=	=
Social Networks Visualization	13-14	Dr. Ibrahim Aljarah	A4	=	=
Class presentations	15	Dr. Ibrahim Aljarah	A1+A2+A3+A4	=	=
Final Exam	16	Dr. Ibrahim Aljarah	A1+A2+A3+A4	=	=

22. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Lecture, lab and presentations

23. Evaluation Methods and Course Requirements:

Teaching (T) Strategies
Class Contact is 3 Hours per week. The Course will be delivered using different means like lecture, presentations, seminars, discussion and case studies.

Learning (L) Methods
Students attend classes, ask questions and participate in discussions, do the home works, present the assignments and demo their works. A student will use the lab and select a programming language to implement the assignments. Students will access the e-learning platform for more instruction and supported learning materials

Assessment (A) Methods
There will be several assessment methods of evaluation the performance of the students such as attending and class participation, grading the homework, quizzes and assignments; conducting the Midterm and the Final Exams. Every student is expected to completely adhere to the assignments and project strict deadlines, absolutely no exceptions will be given.

24. Course Policies:

A- Attendance policies:

Maximum allowable absence 15% of number of Lectures/Semester

B- Absences from exams and handing in assignments on time:

It is the student's responsibility to ensure that he/she is aware of all assignments, announcements and contents of missed sessions

C- Health and safety procedures:

Practical sessions need labs which are suitable adjustable chairs, safe computers and wires should be well organized.

D- Honesty policy regarding cheating, plagiarism, misbehavior:

It is the student's responsibility to ensure that he/she is adhere with cheating, plagiarism, misbehaviour

E- Grading policy:

Intended (Tentative) Grading Scale:

Range	LG	الحرف	Range	LG	الحرف
91 - 100	A	أ	74 - 77	B-	ب-
86 - 89	A-	أ-	70 - 73	C+	ج+
82 - 85	B+	ب+	66 - 69	C	ج

78 - 81	B	ب	61 - 65	C-	-ج

Grading and Evaluation Criteria: 100 points distributed as follows:

Weight	Criteria	Comments
30%	Midterm Exam	TBA (in due course)
15%	Assignments	TBA (in due course)
15%	Project	Class participation
40%	Final Exam	TBA (in due course)

F- Available university services that support achievement in the course:

Computer Labs.

25. Required equipment:

1- Personal computers in a lab.

2- Data show

26. References:

Social Network Analysis with applications, WILEY Publisher, 2013, By: Ian McCulloh, Helen Armstrong, and Anthony Johnson

Social Media Mining: An Introduction, 2014, USA. By: Reza Zafarani, Mohammad Ali Abbasi, Huan Liu, Arizona State University

Data Mining Concepts and Techniques: Morgan Kaufmann Publishers is an imprint of Elsevier, 2006, second edition, By: Jiawei Han, Micheline Kamber, University of Illinois at Urbana-Champaign

Softwares / Packages / Tools: Python, R, Gephi, NetworkX, IGRAPH, WEKA, Pajek, etc.

27. Additional information:

1. The honor code applies to all work turned in for this course including exams and assignments. It is important that you understand the solutions to all problems, and the best way to gain an understanding is to work them out and write them up by yourself. Hence the policy is that you must submit your own work and clearly list your references. You may not share your work with other students, unless it is allowed as group. Violating the policy will be taken as a no submission state for the assignment. University regulations will be preserved at all times.

2. Tardiness and/or absenteeism will have a negative impact on the course grade.

3. الامتناع المدبر عن حضور المحاضرات أو الدروس أو عن الأعمال الاخرى التي تقضي الأنظمة بالمواظبة عليها ، وكل تحريض على هذا الامتناع سوف يؤدي الى حرمان الطالب من المادة المعنية.

4. في حالة التغيب عن الامتحانين الأول و الثاني لن يكون هناك امتحان تعويضي الا في حالة وجود عذر وحالة طارئة من المستشفى. على الطالب ابراز العذر لمدرس المادة في فتره لا تتجاوز الثلاثة ايام من تاريخ الامتحان, وللمدرس الحق في قبول او رفض العذر , وحسب التعليمات.

5. Concerns or complaints should be expressed in the first instance to the module lecturer; if no resolution is forthcoming then the issue should be brought to the attention of the module coordinator (for multiple

sections) who will take the concerns to the module representative meeting. Thereafter problems are dealt with by the Department Chair and if still unresolved the Dean and then ultimately the Vice President. For the final complaints, there will be a committee to review grading the final exam.

6. For more details on University regulations please visit http://www.ju.edu.jo/rules/index.htm

Name of Course Coordinator: -Ibrahim Aljarah----------

Signature: ------Ibrahim----------

Date: 18-4-2016----------

Head of curriculum committee/Department: ---------- Signature: ----------

Head of Department: ---------- Signature: ----------

Head of curriculum committee/Faculty: ---------- Signature: ----------

Dean: ---------- -Signature: ----------

Copy to:

Head of Department
Assistant Dean for Quality Assurance
Course File