

Deep Generative Models (AI314)

Master of Science in AI



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*Assistant professor
Faculty of Informatics
Midocean University*



عرض توجيہي Orientation show

Who am I?



❖ Senior Lecturer (Assistant Professor)

School of Computer Sciences, UNIVERSITI SAINS MALAYSIA, 11800 USM, MALAYSIA.

❖ Faculty member at Hodeidah University, Yemen.

Worked as a teaching fellow for two years at the National Advanced IPv6 Center, University Sains Malaysia, Malaysia.

2017- PhD in Computer Science (Multimedia Network Protocols), Universiti Sains Malaysia
Thesis title: Genetic-Based Routing Algorithm with Priority Constraints (GRAPC)

2010- Master in (Computer Science/ Information and Knowledge Engineering), USM
Dissertation Title: Handwritten Arabic Digits Recognition using Cascading Neural Network Ensembles

2003- Bachelor in Computer Science from College of Engineering and Petroleum, Hadhramout University of science and technology, Hadhramout, Yemen.

The course that will be taught

Deep Generative Models



Primary Goal of This Course

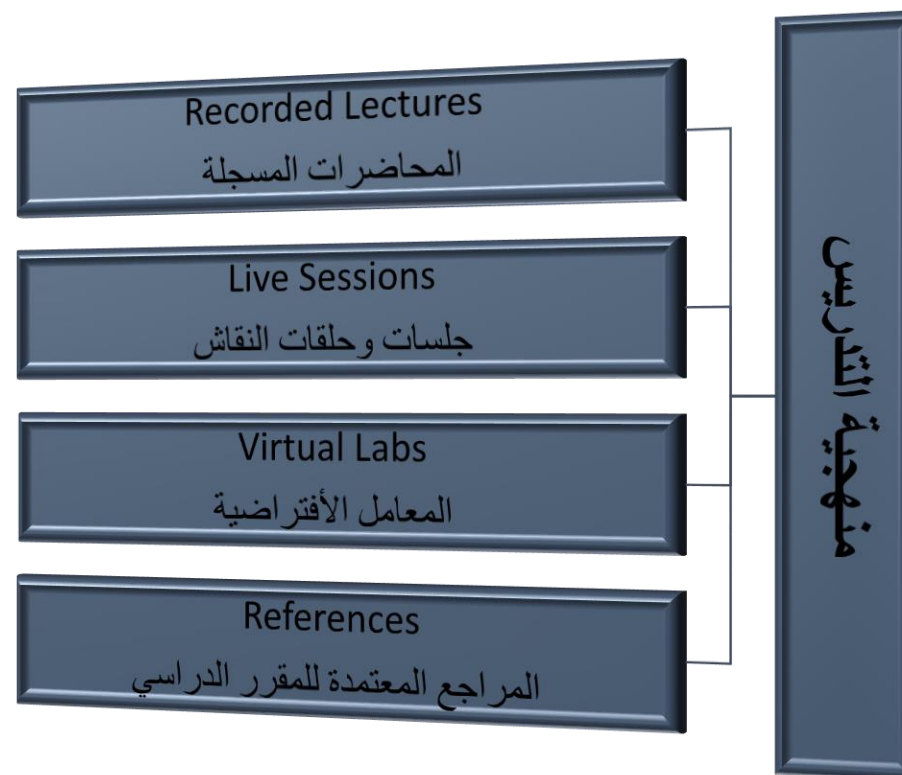
The Deep Generative Models course is designed to provide students with a comprehensive understanding of generative models and their applications in various domains..

What This Course is About

- Introduction to Generative Models
- Basics of Deep Learning
- Variational Autoencoders (VAEs)
- Generative Adversarial Networks (GANs)
- Advanced Generative Models
- Evaluation of Generative Models
- Real-world Applications
- Recent Developments and Future Directions

Units of Course Contents

Module	Course Unit	No.of. Weeks	Contact Hours
1	Lecture 1: Introduction to Generative Models	1 st	3
2	Lecture 2: Basics of Deep Learning	2 nd	3
3	Lecture 3: Variational Autoencoders (VAEs)	3 rd	3
4	Lecture 4: Generative Adversarial Networks (GANs)	4 th	3
5	Lecture 5: Autoregressive Models	5 th	3
6	Lecture 6: Advanced Generative Models	6 th	3
7	Lecture 7: Evaluation of Generative Models	7 th	3
8	Lecture 8: Real-world Applications Part1	8 th	3
9	Lecture 9: Real-world Applications Part2	9 th	3
10	Lecture 10: Recent Developments and Future Directions	10 th	3



الأعمال وتوزيع درجات الفصل الدراسي

توزيع الدرجات - 100%

حضور المحاضرة - حل الأسئلة
المصاحبة

8 درجات لكل اختبار قصير -
بمجموع 80 %

الحضور اختياري

20%

الأعمال

محاضرة مسجلة أسبوعيًا-

اختبار قصير مصاحب للمحاضرة
بشكل أسبوعي

حلقة نقاش افتراضية أسبوعية
لمناقشة محتوى المحاضرة المسجلة

الاختبار النهائي

يتم احتساب الغياب من خلال حل الطالب للاختبار القصير المصاحب للمحاضرة الأسبوعية المسجلة، وفي حال تغيب الطالب عن 4 اختبارات قصيرة يعتبر الطالب في هذه الحالة حرمان.

آخر موعد للاعتذار عن أي اختبار قصير يكون قبل إغلاق موعد الاختبار مع إرفاق الدلائل الثبوتية لأي أعذار قهرية أو مرضية عبر نموذج الأعذار عن اختبار قصير عبر منصة (SIS).

آخر موعد للاعتذار عن الاختبار النهائي يكون قبل موعد عقد الاختبار مع إرفاق الدلائل الثبوتية لأي عذر قهري أو طبي عبر نموذج الأعذار عن اختبار نهائي عبر منصة (SIS). ولن يتم احتساب أي أعذار بعد نهاية الموعد، ويحق لإدارة الجامعة مراعاة بعض الظروف القهرية.

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➤ Assessment Method:

▶ Short Exam

- ▶ **80% marks**
 - ▶ Count of short Exam 10 (Weekly)
 - ▶ 8 Marks for each of short Exam.
- ▶ **20% marks**
 - ▶ Final Examination



Upon successful completion of this course, students should be able to:

- ▶ Understanding of Generative Models
- ▶ Knowledge of Deep Learning Fundamentals
- ▶ Familiarity with Variational Autoencoders (VAEs)
- ▶ Understanding of Generative Adversarial Networks (GANs)
- ▶ Knowledge of Advanced Generative Models
- ▶ Evaluation of Generative Models
- ▶ Application of Deep Generative Model

➤ ***Credit Hours:***

3 credit hours.

➤ ***Essential References:***

1. Generative Deep Learning By David Foster.2022
Foster, David. Generative deep learning. " O'Reilly Media, Inc.", 2022.
2. Deep Generative Modeling By Jakub M. Tomczak · 2022
Tomczak, J. M. (2022). Deep Generative Modeling. Switzerland: Springer International Publishing.

Thank You