Certificate in Cognitive Psychology
認知心理學證書

Programme Code: CS048A
Application Code: 1940-CS048A

Programme website

PSYCHOLOGY

ARTIFICIAL INTELLIGENCE

COGNITIVE SCIENCE

BIG DATA

College of Humanities and Law
人文及法律學院
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資歷架構 Qualifications Framework
QF Level 3 (Reg. No.: 18/000255/L3)
Validity Period: 1 May 2018 - on-going

This course has been included in the list of reimbursable courses under the Continuing Education Fund.

Introduction

Cognitive science has emerged in the last few decades as a major discipline that is becoming increasingly important in the 21st century. It is an interdisciplinary subject focused on achieving a scientific understanding of how human cognition works such as perception, reasoning, memory, attention, language, imagery, motor control, and problem-solving. The goal of cognitive science is to understand (1) the representations and processes in human minds that underwrite these capacities, (2) how they are acquired, and how they develop, and (3) how they are implemented in underlying hardware (biological or otherwise) and other areas (such as artificial intelligence (AI) and virtual reality (VR)). Simply speaking, the goal of cognitive science is to understand how the mind works.

The Certificate in Cognitive Psychology programme provides the basic knowledge of cognitive psychology, cognitive science and machine learning to individuals who want to pursue their further studies in the areas of psychology (general), cognitive science, neuroscience, and cognitive psychology at universities. The programme will introduce the students to the conceptual framework for cognitive science, the basis for machine learning, and its application to cognitive science (i.e. computational cognitive science).

Although a general, brief introduction to the conceptual framework of cognitive science will be covered, the program will focus on the computational aspect (e.g., instead of the neurological or philosophical aspects) of cognitive science. On completion, students can further their studies in the fields of psychology, computational cognitive science, quantitative psychology, data science, big data analytics, artificial intelligence, or other related disciplines in bachelor's or postgraduate's programmes.

Objectives

On completion of the programme, students should be able to

1. describe the history and development of cognitive science;
2. describe the role of cognitive science in the field of psychology;
3. explain the concept and the development of language;
4. explain the differences between human vision and computer vision;
5. apply the fundamental concepts of machine learning and the programming basics in cognitive psychology;
6. identify the role of cognitive psychology in developing the technologies behind artificial intelligence, and of the foundational concepts those technologies provide back to cognitive psychology.

Target Group

This programme provides the basic knowledge and skills to students who wish to apply for undergraduate or postgraduate psychology / cognitive science / computer science programmes at universities. More specifically, for those who wish to continue their studies in psychology or psychology-related fields, the program focuses on providing trainings on the necessary skills for conducting experiments and data analysis (e.g., computer programming, statistics, machine learning for data mining).

For those who do not intend to further their studies in psychology, the machine learning skills covered in this programme will also be helpful for them to further their studies in computer science and to conduct quantitative data analysis in other areas.

Programme Structure

This part-time programme contains 25 sessions, each lasting 4 hours.

Days / Times

Classes will be held on Saturday afternoons from 2:00p.m. – 6:00p.m., from 7 August 2021 – February 2022.

Syllabus

1. Introduction
   - Overview of the programme
   - The philosophy and history of cognitive psychology
   - The role of artifacts in human cognition, the essential characteristics and long-term goals of research in the cognitive science, especially cognitive psychology and artificial intelligence

2. From cognitive psychology to cognitive science: Classification and clustering
   - Explore how machine learning is being used in cognitive psychology
   - Principle of grouping
   - Theory of trial and error learning process

3. From cognitive psychology to cognitive science: Language
   - The evolution of language
   - Word recognition and speech recognition

4. From cognitive psychology to cognitive science: Human vision, computer vision, and neural science
   - Neurons and their role in the human brain
   - Human vision and face recognition
   - Computer vision and image-recognition technology

5. Basics of programming
   - Programming basics
   - Matlab and Octave

6. Concepts about machine learning
   - Overview of machine learning techniques and tools
   - The machine learning models
   - Supervised learning
   - Unsupervised learning

** For some sessions, students are required to bring laptops for in-class exercises. Prior notice will be given.

Medium of Instruction

English, supplemented with Cantonese

Assessment

Students need to fulfill the following requirements before graduation:

- A minimum attendance requirement of 70%; and

- 50% or above of overall course mark, i.e., in-class exercises and two short quizzes.

Course Fee: HK$9,700

Application Fee: HK$150 (non-refundable)

Entry Requirements

Applicants shall:

(a) have gained in the HKDSE Examination Level 2 in five subjects including English Language, Chinese Language, Mathematics, Liberal Studies and 1 elective subject;   or

(b) have gained in the HKCEE Grade E in 3 subjects and Level 2 in Chinese Language and English Language*;   or

(c) have gained in the HKALE Grade E in 1 AL subject or 2 AS subjects

* With effect from 2007, HKU SPACE recognises Grade E previously awarded for Chinese Language and English Language (Syllabus B) (Grade C in the case of English Language (Syllabus A)) at HKCEE as an acceptable alternative to Level 2 in these two subjects at HKCEE.

* Applicants with other qualifications will be considered on individual merit.

Since this is an introductory level programme, no programming background is required.

Application 報名

Applicants should submit: i) *a completed application form (SF26)^,* ii) *copies of academic certificates,* iii) *a copy of HKID card or passport*,* iv) an *application fee of HK$150* by crossed cheque (payable to "HKU SPACE") to the following address:

> Ms. Emma Ng
> HKU SPACE, 11/F, Fortress Tower,
> 250 King's Road,
> North Point, H.K.
> (Remarks: Application for Certificate in Cognitive Psychology)

^ Application forms can be obtained from any HKU SPACE Learning Centres or download from http://hkuspace.hku.hk

* Applicants will be asked to present their HKID cards or passports for verification if applying in person at one of the HKU SPACE enrolment counters, or to attach a copy of their HKID cards or passports if applying by post.

Closing Date for Application

July 2, 2021

Enquiries

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