

Enquire Teaching Timetable

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Course Outcome

BIOL 4310 - Human Genetics

Learning Outcome

Knowledge outcomes:

1. Acquire a core knowledge on the human genome (maintenance of genetic information), inheritance (transfer of genetic information), and genetic defects (misbehaviors in the above processes);
2. Acquire the ability to comprehend and apply genetic concepts in understanding human genetic diseases and related researches;
3. Acquire an educated understanding on the clinical applications of knowledge in human genome.

Skills outcomes:

1. Acquire skills in literature survey using various sources including effective usage of information technologies and web-based searches;
2. Acquire good analytical and oral communication skills via class presentation;
3. Acquire good problem solving skill via course assessment.

Values and attribute outcomes:

1. Acquire an informed attitude to people suffering from genetic diseases, and on application of current technologies in diagnosis and treatment of genetic diseases;
2. Acquire an enthusiastic attitude towards human genetics research.

知識成果:

1. 獲取有關人類基因組, 遺傳學, 和遺傳缺陷的核心知識;
2. 掌握對人類遺傳疾病和有關研究的基礎概念和知識應用的能力;
3. 明白人類基因組知識在臨床醫學上的應用。

技能成果:

1. 掌握文獻調查技能, 包括使用信息技術和有效利從互聯網中搜索中得到的各種來源;
2. 通過班上研習課題獲得良好的分析和溝通技巧;
3. 通過課程評估建立良好的解決問題的技巧。

價值觀和屬性的成果:

1. 對患有遺傳疾病的人以及目前在檢查及治療遺傳疾病中最新的應用技術建立一套認知的態度;
2. 對人類遺傳學研究建立積極的態度。

知识成果:

1. 获取有关人类基因组, 遗传学, 和遗传缺陷的核心知识;
2. 掌握对人类遗传疾病和有关研究的基础概念和知识应用的能力;
3. 明白人类基因组知识在临床医学上的应用。

技能成果:

1. 掌握文献调查技能, 包括使用信息技术和有效利从互联网中搜索中得到的各种来源;
2. 通过班上研习课题获得良好的分析和沟通技巧;
3. 通过课程评估建立良好的解决问题的技巧。

价值观和属性的成果:

1. 对患有遗传疾病的人以及目前在检查及治疗遗传疾病中最新的应用技术建立一套认知的态度;
2. 对人类遗传学研究建立积极的态度。

Course Syllabus

- 1 Introduction to human genetics / How dynamic is our genome?
- 2 Human chromosomes and the Human Genome project
- 3 Repetitive sequences and Telomeres
- 4 Mendelian inheritance and extensions and exceptions to Mendel's Laws
- 5 Epigenetics
- 6 Complex genetic traits
- 7 Polymorphisms (variations) and aberrations
- 8 Mutation and genetic diseases
- 9 Genetics of the mind (behavior)
- 10 Genetics of immunity
- 11 Genetics of cancer
- 12 Genetic testing, genetic counselling, and beyond

1. 人類遺傳學概論/基因組的動態特質
2. 人類染色體及人類基因組計劃
3. 核酸的重複序列和端粒
4. 孟德爾遺傳定律, 其引申, 及例外
5. 表觀遺傳學
6. 複雜(多種因素)的遺傳特徵
7. 多態性及異常
8. 突變與遺傳性疾病
9. 行為遺傳學
10. 免疫遺傳學
11. 癌症遺傳學
12. 基因檢測, 諮詢, 和以後

1. 人类遗传学概论/基因组的动态特质
2. 人类染色体及人类基因组计划
3. 核酸的重复序列和端粒
4. 门德尔遗传定律, 其引申, 及例外

5. 表观遗传学
6. 复杂(多种因素)的遗传特征
7. 多态性及异常
8. 突变与遗传性疾病
9. 行为遗传学
10. 免疫遗传学
11. 癌症遗传学
12. 基因检测, 咨询, 和以后

Assessment Type

	Assessment Type	Current Percent
1	Homework or assignment	30
2	Presentation	20
3	Short answer test or exam	50

Feedback for Evaluation

Feedback for Evaluation:
 Feedback from course evaluation
 Discussion with students
 Staff-student Consultative Committee

課目評鑑
 與學生會談
 師生諮詢委員會

Required Readings

Nil

Recommended Readings

Text Book:
 Human Genetics: Concepts and Applications, Ricky Lewis, 12th edition 2017 McGraw-Hill Higher Education (ISBN 1259700933)

References:
 1. Human Molecular Genetics, Tom Strachan and Andrew Read, 5th edition 2018 Garland Science (ISBN 0815345895)
 2. Thompson & Thompson Genetics in Medicine, Robert L. Nussbaum, Roderick R. McInnes, and Huntington F. Willard, 8th Edition, 2015 Elsevier (ISBN 1437706907)

Recommended:
 The Gene: An Intimate History, Siddhartha Mukherjee, 2016 (ISBN 0670087149)
 She Has Her Mother's Laugh: The Power, Perversions, and Potential of Heredity, Carl Zimmer, 2018 (ISBN 1101984598)