

中國醫藥大學 醫學院生物醫學研究所博士班 必修 畢業學分認定表 107 學年度入學適用

China Medical University Ph.D. Program in Graduate Institute of Biomedical Sciences Requirement for Ph.D. Program (Applicable for 2018-2019)

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 三年級 3 rd year | | 四年級 4 th year | | 五年級 5 th year | | 六年級 6 th year | | 七年級 7 th year | | 課程分類 Category | 備註 Remarks | | |
|-------------------------------------|------------|---------------|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|-----------------------------|-----|---|--|---|---|
| | | | 上 | 下 | 上 | 下 | 上 | 下 | 上 | 下 | 上 | 下 | 上 | 下 | 上 | 下 | | | 上 | 下 |
| | | | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | | | 1 | 2 |
| 分子醫學(Molecular medicine)/D4D000136 | 必(R) | 4.0 | 4.0 | | | | | | | | | | | | | | 院定必修(College Required Courses) | 全英授課(Full English Course) | | |
| 專題討論(一)(Seminar(I))/D4D000001 | 必(R) | 1.0 | 1.0 | | | | | | | | | | | | | | 所定必修(Required Courses) | 全英文授課(Full English Course) | | |
| 專題討論(二)(Seminar(II))/D4D000002 | 必(R) | 1.0 | | 1.0 | | | | | | | | | | | | | 所定必修(Required Courses) | 全英文授課(Full English Course) | | |
| 專題討論(三)(Seminar(III))/D4D000003 | 必(R) | 1.0 | | | 1.0 | | | | | | | | | | | | 所定必修(Required Courses) | 全英文授課(Full English Course) | | |
| 博士論文(Ph. D. Dissertation)/D4D000137 | 必(R) | 12.0 | | | | | | | | | | | | | | | 校定必修-論文(University Required Courses-Thesis) | | | |
| 企業實習(一)(Internship (I))/D4D000141 | 必(R) | 1.0 | | | | | 1.0 | | | | | | | | | | 所定必修(Required Courses) | 生醫科技產業博士學位學程必修課(For The Ph. D. program for biomedicine industry) | | |
| 企業實習(二)(Internship (II))/D4D000142 | 必(R) | 1.0 | | | | | | 1.0 | | | | | | | | | 所定必修(Required Courses) | 生醫科技產業博士學位學程必修課(For The Ph. D. program for biomedicine industry) | | |
| 企業實習(三)(Internship (III))/D4D000143 | 必(R) | 1.0 | | | | | | | 1.0 | | | | | | | | 所定必修(Required Courses) | 生醫科技產業博士學位學程必修課(For The Ph. D. program for biomedicine industry) | | |
| 企業實習(四)(Internship (IV))/D4D000144 | 必(R) | 1.0 | | | | | | | | 1.0 | | | | | | | 所定必修(Required Courses) | 生醫科技產業博士學位學程必修課(For The Ph. D. program for biomedicine industry) | | |
| 合計 必修總學分(Requirement subtotal) | | 23.0 | 5.0 | 1.0 | 1.0 | 0.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | |

校內注意事項

Note of CMU

一、校級畢業規定

(一)須完成修讀「實驗室安全」0學分、「研究倫理」0學分及「現代生物醫學講座」4學分課程。

(二)須通過校定博士生英文能力鑑定標準，相關規定依本校「學生英文能力鑑定實施辦法」辦理。

(三)教學助理訓練：博士生須完成至少2學期之教學助理訓練。

二、本學分表做為畢業應修課程學分之認定依據。

1.University requirement for graduation.

(1)Students must take and pass the courses: Research Ethics (0 credit), Laboratory Safety (0 credit), and Lecture on Modern Biomedicine (4 credits).

(2)According to the regulation of CMU Students' English Proficiency Assessment, students must pass the English Proficiency requirement before graduation.

(Foreign students excluded)

(3)Teaching assistant training: All PhD students must complete at least two semester of teaching assistant training.

(Foreign students excluded)

2.This list is used as the recognition basis of courses and credits required for graduation.

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生物醫學研究所博士班注意事項

注意事項：

一、教育目標：(1)培養醫學科學家。(2)培育具有國際觀之人才。

二、107學年度入學新生實施，本所修業2年至7年，畢業至少需修習31學分始可畢業。必修11學分(含校級必修、院級必修、所定必修)，博士論文12學分、選修8學分(含各組核心選修)。另其他可依學生興趣及研究方向修習本所各組選修課程或他所之課程。

三、各組修課規定：除應修習必修學分外，各組學生需從核心選修課程中，至少擇一門課修習(如該課程有分上、下學期，則皆需修畢，始可認列)，加上選修課程後，始可畢業。

四、研究生修業期間除修習各系所規定應修課程外，尚須完成下列校定課程之研修：

(1)「實驗室安全」-碩博士班校級必修0學分。

(2)「研究倫理」-碩博士班校級必修0學分。

(3)「現代生物醫學講座」-博士班校級必修4學分。

(4)「分子醫學」-碩博士班院級必修4學分。

五、畢業前必須通過英文鑑定，方能畢業。相關規定依本校「學生英文能力鑑定實施辦法」辦理。

六、本學分表做為畢業學分認定之依據。畢業授予學位名稱為理學博士。

七、修讀「醫學工程與復健科技產業博士學位學程」、「生物科技產業博士學位學程」及「生技製藥產業博士學位學程」、「生醫科技產業博士學位學程」、「健康科技產業博士學位學程」者，需完成該學程規定之畢業條件，方能畢業。

單位主管簽章：

Note of Ph.D. Program in Graduate Institute of Biomedical Sciences

1.Educational goals: (1) Cultivate medical scientists. (2) Cultivate talents with global perspective.

2.The doctoral program is a two-to-seven-year course. Minimum credits required for graduation is 31, including 11 credits from required courses (including University-, College-, and Institute-level courses), 8 credits from elective courses (must include 4 credits of GIBS courses) and 12 credits of doctoral thesis research.

3.Student should pass at least 1 elective course of the selected Curriculum Group. If the course has more than one lectures offered in different semester, students should pass all the lectures.

4.Besides taking the required courses, students shall complete the following courses as stipulated by the university:

(1)Laboratory safety: School-level required course, 0 credits.

(2)Research Ethics: School-level required course, 0 credits.

(3)Lecture on Modern Biomedicine: School-level required course, 4 credits.

(4)Molecular medicine: College-level required course, 4 credits.

5.Students must pass the English Proficiency Standard before graduation, according to the regulation of CMU Students' English Proficiency Assessment.(Foreign students excluded)

6.This list is used as the recognition basis of courses and credits required for graduation.

中國醫藥大學 醫學院生物醫學研究所博士班 選修 畢業學分認定表 107 學年度入學適用

China Medical University Ph.D. Program in Graduate Institute of Biomedical Sciences Elective for Ph.D. Program (Applicable for 2018-2019 Enrollees)

第 1 頁 / 共 6 頁

列印日期(Date)：114年4月15日

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 課程分類 Category | 備註 Remarks |
|--|------------|---------------|---|--------|-----------------------------|--------|--|--|
| | | | 上 1 | 下 2 | 上 1 | 下 2 | | |
| | | | 人類胚幹細胞培養與體幹細胞分化實作應用(Application & practice in human embryonic & somatic stem cells)/D4D000014 | 選(E) | 1.0 | 1.0 | | |
| 人類臉孔知覺(Human face perception)/D4D000015 | 選(E) | 2.0 | 2.0 | | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 分子生物技術實作(Molecular biotechniques practice)/D4D000017 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 暑假開課(Summer course) |
| 分子影像(Molecular imaging)/D4D000166 | 選(E) | 2.0 | 2.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 分子癌症生物學(Molecular cancer biology)/D4D000013 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組-核心)(GIBS courses(tumor medicine group-Core course)) | 全英文授課(Full English Course) |
| 分子藥理學專題討論(一)(Seminar in molecular pharmacology (I))/D4D000018 | 選(E) | 1.0 | 1.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 心臟血管科學期刊討論(一)(Advanced seminar in cardiovascular sciences (I))/D4D000022 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 生物醫學跨領域論壇(Forum of cross-talk biomedical sciences)/D4D000004 | 選(E) | 1.0 | 1.0 | | | | 所定選修(不分組)(Department course) | |
| 生醫產業專題討論(Special topics on biomedical industry)/D4D000140 | 選(E) | 2.0 | 2.0 | | | | 所定選修(Elective Courses) | 生醫科技產業博士學位學程選修課(f BioMedical Sciences Industry) |
| 次世代定序數據分析(一)(Data analysis of next generation sequencing (I))/D4D000029 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 自體免疫疾病研究專討(一)(Special topics on autoimmune diseases (I))/D4D000161 | 選(E) | 1.0 | 1.0 | | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 身心功能之生物介面(一)(Mind-body interface (I))/D4D000032 | 選(E) | 2.0 | 2.0 | | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 知覺與注意力專題討論(一)(Seminar in perception & attention (I))/D4D000036 | 選(E) | 1.0 | 1.0 | | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 染色質重組與癌症(一)(Chromatin remodeling & cancer (I))/D4D000040 | 選(E) | 1.0 | 1.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 研究設計與計畫(Study design & proposal)/D4D000044 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | |
| 致病病毒特論(Special topics of pathogenic viruses)/D4D000139 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 神經免疫學(Neuroimmunology)/D4D000048 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | 全英授課(Full English Course) |
| 神經科學(Neuroscience)/D4D000006 | 選(E) | 2.0 | 2.0 | | | | 所定選修(神經科學組-核心)(GIBS courses(neuroscience group-Core course)) | 全英授課(Full English Course) |
| 神經電生理期刊討論(一)(Neuroelectrophysiology (I))/D4D000049 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 神經膠質細胞專題(一)(Seminars in neuroglia (I))/D4D000053 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 高等牙髓病診斷與治療學(Advanced endodontic diagnosis & treatment)/D4D000146 | 選(E) | 2.0 | 2.0 | | | | 所定選修(口腔科學組)(oral science group) | 全英文授課(Full English Course) |
| 高等幹細胞生物學(Advanced stem cell biology)/D4D000165 | 選(E) | 2.0 | 2.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 高等癌症藥理學(一)(Advanced cancer pharmacology (I))/D4D000061 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 英文授課(English-taught course) |
| 基因不穩定性與癌症(Genomic instability & cancer)/D4D000065 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 細胞骨架學專題討論(一)(Seminar in cytoskeleton (I))/D4D000067 | 選(E) | 1.0 | 1.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 發炎與先天免疫專題討論(一)(Seminar in inflammation & innate immunity (I))/D4D000008 | 選(E) | 1.0 | 1.0 | | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英授課(Full English Course) |
| 貴重儀器原理與實習(Principle & practice of biomedical instruments)/D4D000070 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | 暑假開課，全英授課(Summer course; Full-English taught course) |
| 進階口腔胚胎組織學(Advanced oral embryology & histology)/D4D000148 | 選(E) | 2.0 | 2.0 | | | | 所定選修(口腔科學組)(oral science group) | |
| 進階分子生物技術原理與應用(Advanced principles & applications of molecular biotechnology)/D4D000071 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 暑假開課(Summer course) |
| 進階分子細胞生物學(Advanced molecular cell biology)/D4D000005 | 選(E) | 2.0 | 2.0 | | | | 所定選修(分子化學暨細胞生物學-核心)(GIBS courses (Molecular and cellular biology group-Core course)) | 全英授課(Full English Course) |

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第 2 頁 / 共 6 頁

列印日期(Date): 114年4月15日

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 課程分類 Category | 備註 Remarks |
|---|------------|---------------|--|--------|-----------------------------|--------|--|--|
| | | | 上 1 | 下 2 | 上 1 | 下 2 | | |
| | | | 進階心臟分子生化學專題討論(一)(Advanced seminar in molecular cardiology (I))/D4D000073 | 選(E) | 1.0 | 1.0 | | |
| 進階生物技術研究(Advanced biomedical research technique)/D4D000077 | 選(E) | 2.0 | 2.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 進階血管與代謝(一)(Advanced blood vessel & metabolism (I))/D4D000078 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 進階致癌蛋白轉譯後修飾(一)(Advanced oncoprotein post-translational modification (I))/D4D000081 | 選(E) | 1.0 | 1.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 進階計算生物學(Advanced computational biology)/D4D000085 | 選(E) | 2.0 | 2.0 | | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 進階發育神經科學專題討論(一)(Advanced seminar in developmental neuroscience (I))/D4D000086 | 選(E) | 1.0 | 1.0 | | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 進階傳統中草藥與腫瘤治療(一)(Advanced traditional Chinese herbal medicines & cancer treatment (I))/D4D000088 | 選(E) | 1.0 | 1.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 進階齒顎矯正生物力學暨影像分析(Advanced orthodontic biomechanics & image analysis)/D4D000147 | 選(E) | 2.0 | 2.0 | | | | 所定選修(口腔科學組)(oral science group) | 全英文授課(Full English Course) |
| 腫瘤細胞生物學研究法(Bi methodology of tumor cell biology)/D4D000159 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | 全英文授課(Full English Course) |
| 資料庫寫作(Biomedical research based on big data bases)/D4D000158 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 電腦輔助設計與工程(Computer aided design & engineering)/D4D000096 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 醫學工程與復健科技產業博士學位學程合班授課(Medical Engineering and Rehabilitation Science) |
| 實證轉譯醫學(Translational medicine in practice)/D4D000098 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 全英授課(Full English Course) |
| 認知神經科學(Cognitive neuroscience)/D4D000007 | 選(E) | 3.0 | 3.0 | | | | 所定選修(神經科學組-核心)(GIBS courses(neuroscience group-Core course)) | |
| 數位化牙科(Digitalization of dental science)/D4D000145 | 選(E) | 2.0 | 2.0 | | | | 所定選修(口腔科學組-核心)(oral science group-core course) | 全英授課(Full English Course) |
| 癌症外遺傳學(一)(Cancer epigenetics (I))/D4D000100 | 選(E) | 1.0 | 1.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 癌症表遺傳學(一)(Cancer epigenomics (I))/D4D000104 | 選(E) | 1.0 | 1.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 癌症訊號傳遞(Cancer signaling pathways)/D4D000106 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 臨床與基礎研究實習(一)(Clinical & basic research practice)/D4D000114 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | |
| 臨床與基礎醫學整合課程(Integrated course in clinical & basic medicine)/D4D000116 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 臨床醫學組核心選修課(Clinical Medicine Group-Core) |
| 臨床癌症與轉譯醫學(Clinical oncology & translation medicine)/D4D000012 | 選(E) | 2.0 | 2.0 | | | | 所定選修(腫瘤醫學組-核心)(GIBS courses(tumor medicine group-Core course)) | |
| 轉譯內分泌醫學期刊討論(一)(Seminar on the modern translational endocrinology (I))/D4D000117 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 轉譯科學論文之寫作、發表與賞析(Getting start writing, submitting & evaluating translational scientific papers)/D4D000121 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 全英授課(Full English Course) |
| 轉譯精神醫學專題討論(一)(Seminar in translational psychiatry (I))/D4D000122 | 選(E) | 1.0 | 1.0 | | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 轉譯醫學之理論與實務(一)(Theory and practice of translation medicine (I))/D4D000126 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 全英授課(Full English Course) |
| 醫療器材設計原理與專利佈局(Principles of medical equipment design & patent portfolio)/D4D000130 | 選(E) | 2.0 | 2.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 醫學工程與復健科技產業博士學位學程合授課程，口腔科學組核心選修(Medical Engineering and Rehabilitation Science-Core) |
| 藥物流行病學(Pharmacoe pidemiology)/D4D000138 | 選(E) | 2.0 | 2.0 | | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 藥理學之藥物研發專題討論(一)(Seminar in drug discovery (I))/D4D000132 | 選(E) | 1.0 | 1.0 | | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 分子藥理學專題討論(二)(Seminar in molecular pharmacology (II))/D4D000019 | 選(E) | 1.0 | | 1.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |

中國醫藥大學 醫學院生物醫學研究所博士班 選修 畢業學分認定表 107 學年度入學適用

China Medical University Ph.D. Program in Graduate Institute of Biomedical Sciences Elective for Ph.D. Program (Applicable for 2018-2019 Enrollees)

第 3 頁 / 共 6 頁

列印日期(Date): 114年4月15日

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 課程分類 Category | 備註 Remarks |
|--|------------|---------------|---|--------|-----------------------------|--------|--|---|
| | | | 上 1 | 下 2 | 上 1 | 下 2 | | |
| | | | 心臟血管科學期刊討論(二)(Advanced seminar in cardiovascular sciences (II))/D4D000023 | 選(E) | 1.0 | | | |
| 光遺傳學(Optogenetics)/D4D000028 | 選(E) | 2.0 | | 2.0 | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 次世代定序數據分析(二)(Data analysis of next generation sequencing (II))/D4D000030 | 選(E) | 2.0 | | 2.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 自體免疫疾病研究專討(二)(Special topics on autoimmune diseases (II))/D4D000162 | 選(E) | 1.0 | | 1.0 | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 身心功能之生物介面(二)(Mind-body interface (II))/D4D000033 | 選(E) | 2.0 | | 2.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 知覺與注意力專題討論(二)(Seminar in perception & attention (II))/D4D000037 | 選(E) | 1.0 | | 1.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 染色質重組與癌症(二)(Chromatin remodeling & cancer (II))/D4D000041 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 英文科技論文寫作(English writing skills for scientific paper)/D4D000047 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 醫學工程與復健科技產業博士學位學程甲組課程(Medical Engineering and Rehabilitation Science) |
| 神經電生理期刊討論(二)(Neuroelectrophysiology (II))/D4D000050 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 神經膠質細胞專題(二)(Seminars in neuroglia (II))/D4D000054 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 高等口腔腫瘤學(Advanced oral oncology)/D4D000150 | 選(E) | 2.0 | | 2.0 | | | 所定選修(口腔科學組)(oral science group) | |
| 高等生物醫學材料(Advance biomedical materials)/D4D000057 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 醫學工程與復健科技產業博士學位學程甲組課程(Medical Engineering and Rehabilitation Science) |
| 高等奈米生物醫學(Advanced nanobiomedicine)/D4D000058 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 高等癌症藥理學(二)(Advanced cancer pharmacology (II))/D4D000062 | 選(E) | 2.0 | | 2.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 高等囊泡運輸(Advanced vesicular trafficking)/D4D000063 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 高階螢光顯微技術-原理與應用(Advanced fluorescence microscopy - fundamentals & applications)/D4D000064 | 選(E) | 2.0 | | 2.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 基因轉殖及剔除鼠技術(Transgenic & knockout mice)/D4D000066 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 細胞骨架學專題討論(二)(Seminar in cytoskeleton (II))/D4D000068 | 選(E) | 1.0 | | 1.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 發育神經科學(Developmental neuroscience)/D4D000069 | 選(E) | 2.0 | | 2.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 發炎與先天免疫專題討論(二)(Seminar in inflammation & innate immunity (II))/D4D000009 | 選(E) | 1.0 | | 1.0 | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英授課(Full English Course) |
| 進階3D列印醫材專題(Advanced 3D printing of medical materials)/D4D000149 | 選(E) | 2.0 | | 2.0 | | | 所定選修(口腔科學組)(oral science group) | 全英文授課(Full English Course) |
| 進階心血管藥理學(Advanced cardiovascular pharmacology)/D4D000072 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | 全英文授課(Full English Course) |
| 進階心臟分子生化學專題討論(二)(Advanced seminar in molecular cardiology (II))/D4D000074 | 選(E) | 1.0 | | 1.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | 全英文授課(Full English Course) |
| 進階血管與代謝(二)(Advanced blood vessel & metabolism (II))/D4D000079 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 進階胚胎複製與多能性幹細胞(Advanced embryo cloning & pluripotent stem cells)/D4D000080 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | 全英文授課(Full English Course) |
| 進階致癌蛋白轉譯後修飾(二)(Advanced oncoprotein post-translational modification (II))/D4D000082 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 進階動脈粥狀硬化(Advanced molecular pathology of atherosclerosis)/D4D000157 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 進階發育神經科學專題討論(二)(Advanced seminar in developmental neuroscience (II))/D4D000087 | 選(E) | 1.0 | | 1.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 進階傳統中草藥與腫瘤治療(二)(Advanced traditional Chinese herbal medicines & cancer treatment (II))/D4D000089 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 腫瘤免疫學(Tumor immunology)/D4D000168 | 選(E) | 2.0 | | 2.0 | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |

中國醫藥大學 醫學院生物醫學研究所博士班 選修 畢業學分認定表 107 學年度入學適用

China Medical University Ph.D. Program in Graduate Institute of Biomedical Sciences Elective for Ph.D. Program (Applicable for 2018-2019 Enrollees)

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 課程分類 Category | 備註 Remarks |
|---|------------|---------------|--|--------|-----------------------------|--------|--|---|
| | | | 上 1 | 下 2 | 上 1 | 下 2 | | |
| | | | 腫瘤發展與惡化(Tumor development & progression)/D4D000160 | 選(E) | 2.0 | | | |
| 腫瘤醫學(Tumor medicine)/D4D000167 | 選(E) | 2.0 | | 2.0 | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 電腦輔助藥物設計(Computer-aided drug design)/D4D000097 | 選(E) | 2.0 | | 2.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 論文寫作與研究計劃撰寫(Scientific writing)/D4D000099 | 選(E) | 1.0 | | 1.0 | | | 所定選修(微生物暨免疫學組)(GIBS course (microbiology and immunology group)) | |
| 癌症外遺傳學(二)(Cancer epigenetics (II))/D4D000101 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 癌症表遺傳學(二)(Cancer epigenomics (II))/D4D000105 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 癌症細胞死亡之調控(Regulation of cell death in cancer)/D4D000107 | 選(E) | 2.0 | | 2.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 臨床流行病學(Clinical epidemiology)/D4D000108 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 全英文授課(Full English Course) |
| 臨床試驗(Clinical trials)/D4D000113 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | |
| 臨床與基礎研究實習(二)(Clinical & basic research practice (II))/D4D000115 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | |
| 轉譯內分泌醫學期刊討論(二)(Seminar on the modern translational endocrinology (II))/D4D000118 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 轉譯精神醫學專題討論(二)(Seminar in translational psychiatry (II))/D4D000123 | 選(E) | 1.0 | | 1.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 轉譯醫學之理論與實務(二)(Theory and practice of translation medicine (II))/D4D000127 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | 全英文授課(Full English Course) |
| 轉譯醫學期刊論文解析(Translational journal paper analysis)/D4D000128 | 選(E) | 2.0 | | 2.0 | | | 所定選修(臨床醫學組-核心)(GIBS course (clinical medicine group-Core course)) | |
| 醫療器材管理與法規(Management & regulation of medical devices)/D4D000151 | 選(E) | 2.0 | | 2.0 | | | 所定選修(口腔科學組)(oral science group) | 醫學工程與復健科技產業博士學位課程合班授課(Medical Engineering and Rehabilitation Science) |
| 離子通道及相關疾病(Ion channels & disease)/D4D000131 | 選(E) | 2.0 | | 2.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 藥理學之藥物研發專題討論(二)(Seminar in drug discovery (II))/D4D000133 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 分子藥理學專題討論(三)(Seminar in molecular pharmacology (III))/D4D000020 | 選(E) | 1.0 | | 1.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 心臟血管科學期刊討論(三)(Advanced seminar in cardiovascular sciences (III))/D4D000024 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 自體免疫疾病研究專討(三)(Special topics on autoimmune diseases (III))/D4D000163 | 選(E) | 1.0 | | 1.0 | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 身心功能之生物介面(三)(Mind-body interface (III))/D4D000034 | 選(E) | 2.0 | | 2.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 知覺與注意力專題討論(三)(Seminar in perception & attention (III))/D4D000038 | 選(E) | 1.0 | | 1.0 | | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 染色質重組與癌症(三)(Chromatin remodeling & cancer (III))/D4D000042 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 神經電生理期刊討論(三)(Neuroelectrophysiology (III))/D4D000051 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 神經膠質細胞專題(三)(Seminars in neuroglia (III))/D4D000055 | 選(E) | 1.0 | | 1.0 | | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 發炎與先天免疫專題討論(三)(Seminar in inflammation & innate immunity (III))/D4D000010 | 選(E) | 1.0 | | 1.0 | | | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 進階心臟分子生化學專題討論(三)(Advanced seminar in molecular cardiology (III))/D4D000075 | 選(E) | 1.0 | | 1.0 | | | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | 全英文授課(Full English Course) |
| 進階兒童及特殊需求者牙醫學(Advanced pediatric dentistry & special care dentistry)/D4D000154 | 選(E) | 2.0 | | 2.0 | | | 所定選修(口腔科學組)(oral science group) | |
| 進階致癌蛋白轉譯後修飾(三)(Advanced oncoprotein post-translational modification (III))/D4D000083 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 進階傳統中草藥與腫瘤治療(三)(Advanced traditional Chinese herbal medicines & cancer treatment (III))/D4D000090 | 選(E) | 1.0 | | 1.0 | | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |

中國醫藥大學 醫學院生物醫學研究所博士班 選修 畢業學分認定表 107 學年度入學適用

China Medical University Ph.D. Program in Graduate Institute of Biomedical Sciences Elective for Ph.D. Program (Applicable for 2018-2019 Enrollees)

第 5 頁 / 共 6 頁

列印日期(Date)：114年4月15日

| 科目名稱/課號 Course Title/Course ID | 修別 Type | 學分 Credits | 一年級 1 st year | | 二年級 2 nd year | | 課程分類 Category | 備註 Remarks |
|--|------------|---------------|-----------------------------|--------|-----------------------------|--------|--|----------------------------|
| | | | 上 1 | 下 2 | 上 1 | 下 2 | | |
| 進階電腦輔助口腔暨顎顏面手術(Advanced computer-aid oral & maxillofacial surgery)/D4D000153 | 選(E) | 2.0 | | | 2.0 | | 所定選修(口腔科學組)(oral science group) | 全英文授課(Full English Course) |
| 當代牙科議題(Contemporary dental issues)/D4D000152 | 選(E) | 2.0 | | | 2.0 | | 所定選修(口腔科學組)(oral science group) | |
| 癌症外遺傳學(三)(Cancer epigenetics (III))/D4D000102 | 選(E) | 1.0 | | | 1.0 | | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 轉譯內分泌醫學期刊討論(三)(Seminar on the modern translational endocrinology (III))/D4D000119 | 選(E) | 1.0 | | | 1.0 | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 轉譯精神醫學專題討論(三)(Seminar in translational psychiatry (III))/D4D000124 | 選(E) | 1.0 | | | 1.0 | | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 藥理學之藥物研發專題討論(三)(Seminar in drug discovery (III))/D4D000134 | 選(E) | 1.0 | | | 1.0 | | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 分子藥理學專題討論(四)(Seminar in molecular pharmacology (IV))/D4D000021 | 選(E) | 1.0 | | | | 1.0 | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | |
| 心臟血管科學期刊討論(四)(Advanced seminar in cardiovascular sciences (IV))/D4D000025 | 選(E) | 1.0 | | | | 1.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 牙齒幹細胞生物學(Stem cell biology in dental sciences)/D4D000155 | 選(E) | 2.0 | | | | 2.0 | 所定選修(口腔科學組)(oral science group) | 全英文授課(Full English Course) |
| 自體免疫疾病研究專討(四)(Special topics on autoimmune diseases (IV))/D4D000164 | 選(E) | 1.0 | | | | 1.0 | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 系統癌症病理學(Systems molecular cancer pathology)/D4D000031 | 選(E) | 2.0 | | | | 2.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 身心功能之生物介面(四)(Mind-body interface (IV))/D4D000035 | 選(E) | 2.0 | | | | 2.0 | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 知覺與注意力專題討論(四)(Seminar in perception & attention (IV))/D4D000039 | 選(E) | 1.0 | | | | 1.0 | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | |
| 染色質重組與癌症(四)(Chromatin remodeling & cancer (IV))/D4D000043 | 選(E) | 1.0 | | | | 1.0 | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 神經電生理期刊討論(四)(Neuroelectrophysiology (IV))/D4D000052 | 選(E) | 1.0 | | | | 1.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 神經膠質細胞專題(四)(Seminars in neuroglia (IV))/D4D000056 | 選(E) | 1.0 | | | | 1.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 專題討論(四)(Seminar(IV))/D4D000156 | 選(E) | 1.0 | | | | 1.0 | 所定必修(Required Courses) | |
| 發炎與先天免疫專題討論(四)(Seminar in inflammation & innate immunity (IV))/D4D000011 | 選(E) | 1.0 | | | | 1.0 | 所定選修(微生物暨免疫學組-核心)(GIBS course (microbiology and immunology group-core course)) | 全英文授課(Full English Course) |
| 進階心臟分子生化學專題討論(四)(Advanced seminar in molecular cardiology (IV))/D4D000076 | 選(E) | 1.0 | | | | 1.0 | 所定選修(分子化學暨細胞生物學組)(GIBS courses (Molecular and cellular biology group)) | 全英文授課(Full English Course) |
| 進階致癌蛋白轉譯後修飾(四)(Advanced oncoprotein post-translational modification (IV))/D4D000084 | 選(E) | 1.0 | | | | 1.0 | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 進階傳統中草藥與腫瘤治療(四)(Advanced traditional Chinese herbal medicines & cancer treatment (IV))/D4D000091 | 選(E) | 1.0 | | | | 1.0 | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | 全英文授課(Full English Course) |
| 癌症外遺傳學(四)(Cancer epigenetics (IV))/D4D000103 | 選(E) | 1.0 | | | | 1.0 | 所定選修(腫瘤醫學組)(GIBS courses(tumor medicine group)) | |
| 轉譯內分泌醫學期刊討論(四)(Seminar on the modern translational endocrinology (IV))/D4D000120 | 選(E) | 1.0 | | | | 1.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 轉譯精神醫學專題討論(四)(Seminar in translational psychiatry (IV))/D4D000125 | 選(E) | 1.0 | | | | 1.0 | 所定選修(神經科學組)(GIBS courses(neuroscience group)) | 全英文授課(Full English Course) |
| 藥理學之藥物研發專題討論(四)(Seminar in drug discovery (IV))/D4D000135 | 選(E) | 1.0 | | | | 1.0 | 所定選修(臨床醫學組)(GIBS course (clinical medicine group)) | |
| 合計 選修總學分(Elective subtotal) | | 213.0 | 93.0 | 75.0 | 23.0 | 22.0 | | |

校內注意事項

Note of CMU

一、校級畢業規定

- (一)須完成修讀「實驗室安全」0學分、「研究倫理」0學分及「現代生物醫學講座」4學分課程。
- (二)須通過校定博士生英文能力鑑定標準，相關規定依本校「學生英文能力鑑定實施辦法」辦理。
- (三)教學助理訓練：博士生須完成至少2學期之教學助理訓練。

二、本學分表做為畢業應修課程學分之認定依據。

1.University requirement for graduation.

- (1)Students must take and pass the courses: Research Ethics (0 credit), Laboratory Safety (0 credit), and Lecture on Modern Biomedicine (4 credits).
- (2)According to the regulation of CMU Students' English Proficiency Assessment, students must pass the English Proficiency requirement before graduation.
(Foreign students excluded)
- (3)Teaching assistant training: All PhD students must complete at least two semester of teaching assistant training.
(Foreign students excluded)

生物醫學研究所博士班注意事項

注意事項：

一、教育目標：(1)培養醫學科學家。(2)培育具有國際觀之人才。

二、107學年度入學新生實施，本所修業2年至7年，畢業至少需修習31學分始可畢業。必修11學分(含校級必修、院級必修、所定必修)，博士論文12學分、選修8學分(含各組核心選修)。另其他可依學生興趣及研究方向修習本所各組選修課程或他所之課程。

三、各組修課規定：除應修習必修學分外，各組學生需從核心選修課程中，至少擇一門課修習(如該課程有分上、下學期，則皆需修畢，始可認列)，加上選修課程後，始可畢業。

四、研究生修業期間除修習各系所規定應修課程外，尚須完成下列校定課程之研修：

(1)「實驗室安全」-碩博士班校級必修0學分。

(2)「研究倫理」-碩博士班校級必修0學分。

(3)「現代生物醫學講座」-博士班校級必修4學分。

(4)「分子醫學」-碩博士班院級必修4學分。

五、畢業前必須通過英文鑑定，方能畢業。相關規定依本校「學生英文能力鑑定實施辦法」辦理。

六、本學分表做為畢業學分認定之依據。畢業授予學位名稱為理學博士。

七、修讀「醫學工程與復健科技產業博士學位學程」、「生物科技產業博士學位學程」及「生技製藥產業博士學位學程」、「生醫科技產業博士學位學程」、「健康科技產業博士學位學程」者，需完成該學程規定之畢業條件，方能畢業。

單位主管簽章：

2.This list is used as the recognition basis of courses and credits required for graduation.

Note of Ph.D. Program in Graduate Institute of Biomedical Sciences

1.Educational goals: (1) Cultivate medical scientists. (2) Cultivate talents with global perspective.

2.The doctoral program is a two-to-seven-year course. Minimum credits required for graduation is 31, including 11 credits from required courses (including University-, College-, and Institute-level courses), 8 credits from elective courses (must include 4 credits of GIBS courses) and 12 credits of doctoral thesis research.

3.Student should pass at least 1 elective course of the selected Curriculum Group. If the course has more than one lectures offered in different semester, students should pass all the lectures.

4.Besides taking the required courses, students shall complete the following courses as stipulated by the university:

(1)Laboratory safety: School-level required course, 0 credits.

(2)Research Ethics: School-level required course, 0 credits.

(3)Lecture on Modern Biomedicine: School-level required course, 4 credits.

(4)Molecular medicine: College-level required course, 4 credits.

5.Students must pass the English Proficiency Standard before graduation, according to the regulation of CMU Students' English Proficiency Assessment.(Foreign students excluded)

6.This list is used as the recognition basis of courses and credits required for graduation.