

國立彰化師範大學 科學教育研究所數理創意教學及科普推廣碩士在職專班畢業條件表暨課程架構表  
106學年度入學學生適用

列印日期：2017/7/6

|     |                    |  | 第一學年  |   |    |    | 第二學年 |  |    |   |    |    |    |    |
|-----|--------------------|--|---|---|----|----|------|--|----|---|----|----|----|----|
|     |                    |  | 科目  |   | 上  |    | 下    |  | 科目 |   | 上  |    | 下  |    |
|     |                    |  |   |   | 學分 | 學時 | 學分   | 學時   |    |   | 學分 | 學時 | 學分 | 學時 |
| 系必修 |                    |  | 科學教育專論<br>General Topics in Science Education                                 | 2 | 2  |    |      | 科學教育論文寫作<br>Science and Mathematics Education Academic Writing         | 2  | 2 |    |    |    |    |
|     |                    |  | 科學教育專題討論<br>Research Seminar in Science Education                             |   |    | 2  | 2    | 論文<br>Thesis   |    |   |    | 0  | 0  |    |
|     |                    |  |   |   |    |    |      | 論文指導<br>Thesis Supervision   |    |   |    | 4  | 0  |    |
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| 系選修 | 研究與評鑑方法<br>(至少4學分) |  | 科學教育研究法<br>Research Methods in Science Education                              |   |    | 2  | 2    | 設計研究導論<br>Introduction of Design Studies                               |    |   |    | 2  | 2  |    |
|     |                    |  | 數理科教學測驗與評量<br>Measurement and Evaluation in Science and Mathematics Education |   |    | 2  | 2    | 數理行動研究<br>Action Research of Science and Mathematics Education         |    |   |    | 2  | 2  |    |
|     |                    |  | 數理教育統計<br>Science and Mathematics Educational Statistics                      |   |    | 2  | 2    | 質的資料分析<br>Qualitative Data Analysis                                    |    |   |    | 2  | 2  |    |
|     |                    |  | 質的研究法<br>Qualitative Research   |   |    | 2  | 2    |  |    |   |    |    |    |    |
| 系選修 | 基礎教育<br>(至少6學分)    |  | 合作學習<br>Collaborative Learning  |   |    | 2  | 2    | 地球科學<br>Earth Science  | 2  | 2 |    |    |    |    |
|     |                    |  | 批判思考<br>Critical Thinking   |   |    | 2  | 2    | 科學史<br>History of Science  |    |   |    | 2  | 2  |    |
|     |                    |  | 基礎科學/數學探討<br>Investigation of Fundamental Science/Mathematics                 | 2 | 2  |    |      | 科學史哲在教學上的應用<br>Application of Science History & Philosophy in Teaching | 2  | 2 |    |    |    |    |
|     |                    |  | 當代科教思潮<br>Contemporary Trend of Thought in Science Education                  | 2 | 2  |    |      | 科學教育與文化<br>Science Education & Culture                                 | 2  | 2 |    |    |    |    |
|     |                    |  | 當代科學/數學發展<br>Development of Contemporary Science/Mathematics                  |   |    | 2  | 2    | 教育行政<br>Education Administration                                       |    |   |    | 2  | 2  |    |
|     |                    |  | 數理教學原理與策略<br>Principles & Strategies of Science and Mathematics Teaching      |   |    | 2  | 2    | 教室經營與管理<br>Classroom Management  |    |   |    | 2  | 2  |    |
|     |                    |  | 數理認知心理學<br>Cognitive Psychology in Science and Mathematics Education          |   |    | 2  | 2    | 數理特殊教育<br>Special Education on Science and Mathematics                 |    |   |    | 2  | 2  |    |
|     |                    |  |   |   |    |    |      | 數理專題研究<br>Topics in Science and Mathemaitcs                            |    |   |    | 2  | 2  |    |
|     |                    |  |   |   |    |    |      | 環境科學<br>Environmental Science  |    |   |    | 2  | 2  |    |
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| 系選修   | 課程與教導<br>(至少4學分)  | 中小學數理課程探討<br>Investigation of School Science and Mathematics Curricula | 2 | 2 | 2 | 2 | 科展活動設計與研究<br>Science Fair Activity Design and Research                         | 2 | 2 |  |  |   |   |   |
|   |   | 科學教育視導與評鑑<br>Supervision and Evaluation of Science Education           |   |   |   |   | 科學教育研究在教學上的應用<br>Application of Science Education Research Finding in Teaching |   |   |  |  | 2   | 2 |   |
|   |   | 電腦在科學教育上的應用<br>Applying Computer in Science Education                  |   |   |   |   | 教學實務探討<br>Investigation into Teaching Practices                                |   |   |  |  | 2   | 2 |   |
|   |   | 數理教學活動設計<br>Science and Mathematics Teaching Activities                |   |   |   |   | 統整科學<br>Integrated Science   |   |   |  |  | 2   | 2 |   |
|   |   | 數理教學模式<br>Science and Mathemaitcs Teaching Modality                    |   |   |   |   | 電腦多媒體教學<br>Computer-based Multimedia Teaching                                  |   |   |  |  |   | 2 | 2 |
|   |   |  |   |   |   |   | 數理教學知識<br>Science and Mathematics Pedagogical Knowledge                        |   |   |  |  |   | 2 | 2 |
|   |   |  |   |   |   |   | 數理價值教學研究<br>Research Value in Science and Mathematics Teaching                 |   |   |  |  | 2   | 2 |   |
|   |   |  |   |   |   |   | 學習動機專題研究<br>Topics in Learning Motivation                                      |   |   |  |  | 2   | 2 |   |
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|   |   | 系選修  |   |   |   |   | 創意教學及科普推廣<br>(至少4學分)   |   |   |  |  | 科普/數普著作賞析<br>Reading and Analysis of Popular Science/Mathematics Writings | 2 | 2 |
| 科學/數學遊戲設計<br>Design of Science/Mathemaitcs Games                    | 2   |  | 2 |   |   |   |  |   |   |  |  |   |   |   |
| 科學/數學魔術<br>Science/Mathematics Magics                               | 2   |  | 2 |   |   |   |  |   |   |  |  |   |   |   |
| 數理創意教學資源<br>Resources for Science and Mathematics Creative Teaching | 2   |  | 2 |   |   |   |  |   |   |  |  |   |   |   |
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| 先修科目  |   |  |   |   |   |   |  |   |   |  |  |   |   |   |
| 畢業條件  | 一、本班最低畢業學分數為32學分，其中必修課程10學分（含論文指導4學分），選修22學分。<br>二、論文指導學時數由各指導教授安排。<br>三、當學期申請學位考試者務必選修論文，俾取得口試之資格。<br>四、實際開課情形以當學期公告為準。<br>五、其餘畢業條件詳見本所當學年度研究生手冊。<br>六、【研究生應於申請學位考試前修習通過於「臺灣學術倫理教育資源中心」(https://ethics.nctu.edu.tw/)網路教學平台之「學術研究倫理教育」課程】等相關規定。 |  |   |   |   |   |  |   |   |  |  |   |   |   |