

國立成功大學112學年度第2學期遠距教學課程申請書

填表說明：

- 依據專科以上學校遠距教學實施辦法第6條：學校開授遠距教學課程，應依學校規定由開課單位擬具教學計畫，依大學法施行細則及專科學校法規定之課程規劃及研議程序辦理，經教務相關之校級會議通過後實施，並應公告於網路。前項教學計畫，應載明教學目標、修讀對象、課程大綱、上課方式、師生互動討論、成績評量方式及上課注意事項。
- 未標示“無則免填”即為必填項目。
- 請以“■”標示選擇內容。

壹、課程基本資料

| 項次 | 項目 | 內容 |
|------|----------------|--|
| 1-1 | 開課學院 | 管理學院 |
| 1-2 | 開課系所(單位) | 工業與資訊管理學系 |
| 1-3 | 課程名稱 | 作業研究 |
| 1-4 | 課程英文名稱 | Operations Research |
| 1-5 | 課程碼 | H336100 |
| 1-6 | 本門課是否開放台綜大學生選修 | <input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否 |
| 1-7 | 本門課曾開過遠距 | <input checked="" type="checkbox"/> 是 <input type="checkbox"/> 有修訂教學計畫內容，擬重提校課委員會審議。 <input checked="" type="checkbox"/> 未修訂教學計畫內容，僅申請本學期開課。 <input type="checkbox"/> 否 |
| 1-8 | 教學型態 | <input type="checkbox"/> 非同步遠距教學 <input checked="" type="checkbox"/> 同步遠距教學主播學校 請填列本門課程之收播學校與系所：(無則免填) (1)學校： 系所： |
| 1-9 | 授課教師姓名 | 王逸琳 |
| | 職稱 | 教授 |
| | 連絡電話 | 53123 |
| | e-mail | ilinwang@mail.ncku.edu.tw |
| 1-10 | 師資來源 | <input checked="" type="checkbox"/> 專業系所聘任 <input type="checkbox"/> 通識中心聘任 <input type="checkbox"/> 以上合聘 <input type="checkbox"/> 其他 |
| 1-11 | 課程學制 | <input checked="" type="checkbox"/> 學士班(學位學程) <input type="checkbox"/> 碩士班(學位學程) <input type="checkbox"/> 碩士班在職專班 <input type="checkbox"/> 博士班 |
| 1-12 | 部別 | <input checked="" type="checkbox"/> 日間部 <input type="checkbox"/> 其他 |
| 1-13 | 科目類別 | <input type="checkbox"/> 通識科目 <input type="checkbox"/> 校定科目 <input checked="" type="checkbox"/> 專業科目 <input type="checkbox"/> 其他 |

| 項次 | 項目 | 內容 |
|------|------------------|--|
| 1-14 | 部校定(本課程由那個單位所定) | <input type="checkbox"/> 校定 <input type="checkbox"/> 院定 <input checked="" type="checkbox"/> 系所定 <input type="checkbox"/> 其他 |
| 1-15 | 開課期限(授課學期數) | <input checked="" type="checkbox"/> 一學期(半年) <input type="checkbox"/> 二學期(全年) <input type="checkbox"/> 其他 |
| 1-16 | 選課別 | <input checked="" type="checkbox"/> 必修 <input type="checkbox"/> 選修 <input type="checkbox"/> 其他 |
| 1-17 | 學分數 | 3 |
| 1-18 | 每週上課時數 | 3 |
| 1-19 | 合班數(無則免填) | |
| 1-20 | 預計總修課人數 | 100 |
| 1-21 | 全英語教學 | <input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否 |
| 1-22 | 國內學校合作遠距課程(無則免填) | 學校 學系 |
| 1-23 | 國外學校合作遠距課程(無則免填) | 國外合作學校與系所名稱: _____ <input type="checkbox"/> 國內主播 <input type="checkbox"/> 國內收播 <input type="checkbox"/> 境外專班 <input type="checkbox"/> 雙聯學制 <input type="checkbox"/> 其他 |
| 1-24 | 課程平臺網址 | <input checked="" type="checkbox"/> 數位學習平台(moodle); 連結網址: https://moodle.ncku.edu.tw/course/view.php?id=21229 <input type="checkbox"/> 線上學習平台(N3learning); 連結網址: <input type="checkbox"/> 磨課師, 課程名稱 _____, 連結網址: <input type="checkbox"/> 外校(如 ewant 等), 連結網址: |
| 1-25 | 教學計畫大綱檔案連結網址 | http://class-qry.acad.ncku.edu.tw/syllabus/syllabus.php?syear=0110&sem=2&co_no=H336100&class_code= |
| 1-26 | 連絡人(助理)(無則免填) | |
| | 職稱 | |
| | 連絡電話 | |
| | e-mail | |

貳、課程教學計畫

| 項次 | 項目 | 內容 |
|-----|------|--|
| 2-1 | 教學目標 | This course focus on deterministic optimization. We will first introduce foundations of operations research such as basic linear algebra, linearity, variables, constraints, and objective function. We then focus on linear programming (LP), network optimization (NO), integer programming (IP), nonlinear programming (NLP), and Dynamic Programming (DP). Related |

| 項次 | 項目 | 內容 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | | issues include mathematical properties and theorems, LP and IP modeling techniques, solution methods (e.g., simplex method, graph algorithms, branch-and-bound, gradient descent algorithm), managerial insights (duality, sensitivity analysis), and applications. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-2 | 適合修習對象 | 工資管系大學部2年級 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-3 | 課程內容大綱 (請填寫每週次的授課內容及授課方式) | <table border="1"> <thead> <tr> <th>週次</th> <th>授課內容</th> <th>面授時數</th> <th>同步時數</th> <th>非同步時數</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Introduction (Applications of different topics)</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>2</td> <td>Introduction (History, Categories, Complexity)</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>3</td> <td>Linear Algebra, Discrete Mathematics</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>4</td> <td>Data Structure, and Calculus</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>5</td> <td>LP: Mathematical Foundations</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>6</td> <td>Midterm Exam 1; LP: Mathematical Modeling</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td>7</td> <td>LP: The Simplex Method, Duality</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>8</td> <td>LP: Duality, Sensitivity Analysis</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>9</td> <td>LP: Other LP Algorithm (Revised Simplex)</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>10</td> <td>Midterm Exam 2; LP: Dantzig-Wolfe</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td>11</td> <td>NO: Formulations, Shortest Paths</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>12</td> <td>NO: Maximum Flows</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>13</td> <td>NO: Min-cost Flows, Network Simplex Method</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>14</td> <td>Midterm Exam 3; NO: Matching</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td>15</td> <td>IP: Branch-and-Bound; Modeling</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>16</td> <td>IP: Modeling;</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>17</td> <td>NLP: Steepest Descent Algorithm</td> <td></td> <td>3</td> <td>3</td> </tr> <tr> <td>18</td> <td>Final Exam; Heuristics, Other Topics;</td> <td>2</td> <td>1</td> <td>1</td> </tr> <tr> <td colspan="2">小計(小時)</td> <td>8</td> <td>46</td> <td>46</td> </tr> </tbody> </table> | 週次 | 授課內容 | 面授時數 | 同步時數 | 非同步時數 | 1 | Introduction (Applications of different topics) | | 3 | 3 | 2 | Introduction (History, Categories, Complexity) | | 3 | 3 | 3 | Linear Algebra, Discrete Mathematics | | 3 | 3 | 4 | Data Structure, and Calculus | | 3 | 3 | 5 | LP: Mathematical Foundations | | 3 | 3 | 6 | Midterm Exam 1 ; LP: Mathematical Modeling | 2 | 1 | 1 | 7 | LP: The Simplex Method, Duality | | 3 | 3 | 8 | LP: Duality, Sensitivity Analysis | | 3 | 3 | 9 | LP: Other LP Algorithm (Revised Simplex) | | 3 | 3 | 10 | Midterm Exam 2 ; LP: Dantzig-Wolfe | 2 | 1 | 1 | 11 | NO: Formulations, Shortest Paths | | 3 | 3 | 12 | NO: Maximum Flows | | 3 | 3 | 13 | NO: Min-cost Flows, Network Simplex Method | | 3 | 3 | 14 | Midterm Exam 3 ; NO: Matching | 2 | 1 | 1 | 15 | IP: Branch-and-Bound; Modeling | | 3 | 3 | 16 | IP: Modeling; | | 3 | 3 | 17 | NLP: Steepest Descent Algorithm | | 3 | 3 | 18 | Final Exam ; Heuristics, Other Topics; | 2 | 1 | 1 | 小計(小時) | | 8 | 46 | 46 |
| | | 週次 | 授課內容 | 面授時數 | 同步時數 | 非同步時數 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 1 | Introduction (Applications of different topics) | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 2 | Introduction (History, Categories, Complexity) | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 3 | Linear Algebra, Discrete Mathematics | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 4 | Data Structure, and Calculus | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 5 | LP: Mathematical Foundations | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 6 | Midterm Exam 1 ; LP: Mathematical Modeling | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 7 | LP: The Simplex Method, Duality | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 8 | LP: Duality, Sensitivity Analysis | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 9 | LP: Other LP Algorithm (Revised Simplex) | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 10 | Midterm Exam 2 ; LP: Dantzig-Wolfe | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 11 | NO: Formulations, Shortest Paths | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 12 | NO: Maximum Flows | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 13 | NO: Min-cost Flows, Network Simplex Method | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 14 | Midterm Exam 3 ; NO: Matching | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 15 | IP: Branch-and-Bound; Modeling | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 16 | IP: Modeling; | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 17 | NLP: Steepest Descent Algorithm | | 3 | 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | Final Exam ; Heuristics, Other Topics; | 2 | 1 | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 小計(小時) | | 8 | 46 | 46 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-4 | 教學方式 (可複選) | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 1.提供線上課程主要及補充教材 <input checked="" type="checkbox"/> 2.提供線上非同步教學 <input checked="" type="checkbox"/> 3.有線上教師或線上助教 <input checked="" type="checkbox"/> 4.提供面授教學，次數：__4__次，總時數：__8__小時 <input checked="" type="checkbox"/> 5.提供線上同步教學，次數：__18__次，總時數：__46__小時 <input checked="" type="checkbox"/> 6.其它：本人線上同步教學皆有錄影當成非同步教學教材 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-5 | 學習管理系統(可複選) | <ul style="list-style-type: none"> 1.提供給系統管理者進行學習管理系統資料庫管理 <ul style="list-style-type: none"> <input type="checkbox"/> 個人資料 <input checked="" type="checkbox"/> 課程資訊 <input type="checkbox"/> 其他相關資料管理功能 2.提供教師(助教)、學生必要之學習管理系統功能 <ul style="list-style-type: none"> <input checked="" type="checkbox"/> 最新消息發佈、瀏覽 <input checked="" type="checkbox"/> 教材內容設計、觀看、下載 <input checked="" type="checkbox"/> 成績系統管理及查詢 <input checked="" type="checkbox"/> 進行線上測驗、發佈 <input checked="" type="checkbox"/> 學習資訊 <input checked="" type="checkbox"/> 互動式學習設計(聊天室或討論區) <input checked="" type="checkbox"/> 各種教學活動之功能呈現 <input type="checkbox"/> 其他相關功能 (請說明) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2-6 | 師生互動討論方式 | <ul style="list-style-type: none"> ● 線上使用 Teams / moodle 軟體提問、解答 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| 項次 | 項目 | 內容 |
|------------|--|---|
| | (包括教師時間、E-mail信箱、對應窗口等) | <ul style="list-style-type: none"> ● 線上使用 zuvio 軟體課堂小考、學習狀況調查 ● 每週1hr助教課，將全班分成10組，由10位助教各自在線上 Teams 的專屬頻道中舉行線上同步教學，當場遠端跟同學互動講解、回答同學問題 |
| 2-7 | 作業繳交方式(可複選) | <input checked="" type="checkbox"/> 1.提供線上說明作業內容 <input checked="" type="checkbox"/> 2.線上即時作業填答 <input checked="" type="checkbox"/> 3.作業檔案上傳及下載 <input checked="" type="checkbox"/> 4.線上測驗 <input checked="" type="checkbox"/> 5.成績查詢 <input type="checkbox"/> 6.其他做法(請說明) |
| 2-8 | 成績評量方式(包括考試方式、考評項目其所佔總分比率) | 考試 60%、作業 35%、出席參與程度 5% |
| 2-9 | 上課注意事項(無則免填) | 老師會不定期用 zuvio 上課小考、助教課將每次記錄出席與參與狀況 |
| 2-10 | 由系辦人員填寫-通過系(所)、院課程委員會(日期及會議名稱) | |
| 簽核處 | | |
| 開課教師簽章 |  | |
| 系所承辦人簽章 |  2023.10.6 | |
| 系所主管簽章 |  | |
| 院長簽章 |  | |