

## 生物統計學 Biostatistics

科號	11120LS 262200	組別		學分	3	人數限制	30
修課年級	<input checked="" type="checkbox"/> 大學部 二 年級以上 <input type="checkbox"/> 碩士班一年級以上(含博士班) <input type="checkbox"/> 碩士班二年級以上(含博士班)						
上課時間	R7R8R9			教室	220 + 217		
科目中文名稱	生物統計學						
科目英文名稱	Biostatistics						
任課教師	張筱涵						

一、課程說明	This 3-credit course is designed for undergraduate students pursuing a biology major. The course format includes a lecture portion covering statistical concepts that are relevant for analyzing biological data, and a computer laboratory component covering usage of R software to perform the analyses described in lecture. It assumes no previous coding experience in R or any other programming language.																											
二、指定用書	Michael C. Whitlock and Dolph Schluter. 2014. <i>The Analysis of Biological Data (Second Edition)</i> . Roberts and Company Publishers, Greenwood Village, Colorado. (ISBN-10: 1936221489)																											
三、教學方式	Lecture, discussion, and computer laboratory																											
四、教學進度	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Week 1</td> <td>2/22 Course overview and introduction to statistics and R</td> </tr> <tr> <td>Week 2</td> <td>2/29 Data visualization and probability distributions</td> </tr> <tr> <td>Week 3</td> <td>3/7 Introduction to inference from samples</td> </tr> <tr> <td>Week 4</td> <td>3/14 Normal distribution and one-sample inference Hypothesis testing</td> </tr> <tr> <td>Week 5</td> <td>3/21 Hypothesis testing (part 2) and comparing two means</td> </tr> <tr> <td>Week 6</td> <td>3/28 Comparing two means (part 2) and non-parametric tests</td> </tr> <tr> <td>Week 7</td> <td>4/4 掃墓節放假</td> </tr> <tr> <td>Week 8</td> <td>4/11 Non-parametric tests (part 2) and permutation test</td> </tr> <tr> <td>Week 9</td> <td>4/18 <b>Midterm</b> (no R section)</td> </tr> <tr> <td>Week 10</td> <td>4/25 <b>*Project idea presentation</b> Goodness-of-fit test and contingency analysis</td> </tr> <tr> <td>Week 11</td> <td>5/2 Analysis of variance</td> </tr> <tr> <td>Week 12</td> <td>5/9 Correlation and regression</td> </tr> <tr> <td>Week 13</td> <td>5/16 Regression (part 2)</td> </tr> </table>		Week 1	2/22 Course overview and introduction to statistics and R	Week 2	2/29 Data visualization and probability distributions	Week 3	3/7 Introduction to inference from samples	Week 4	3/14 Normal distribution and one-sample inference Hypothesis testing	Week 5	3/21 Hypothesis testing (part 2) and comparing two means	Week 6	3/28 Comparing two means (part 2) and non-parametric tests	Week 7	4/4 掃墓節放假	Week 8	4/11 Non-parametric tests (part 2) and permutation test	Week 9	4/18 <b>Midterm</b> (no R section)	Week 10	4/25 <b>*Project idea presentation</b> Goodness-of-fit test and contingency analysis	Week 11	5/2 Analysis of variance	Week 12	5/9 Correlation and regression	Week 13	5/16 Regression (part 2)
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	Week 14	5/23 <b>Final exam</b> and meta-analysis (no R section)
	Week 15	5/30 Likelihood analysis and <b>project presentation</b> (no R section)
	Week 16	6/6 <b>Project presentation</b> (no R section) <b>* The written report for the final project is due on June 13.</b>
五、成績考核	Problem sets: 10%; Class participation: 10%; Midterm: 30%; Final project: 30%; Final exam: 20%	
六、使用 AI 的規則	<p><u>有條件開放，請註明如何使用生成式 AI 於課程產出。</u></p> <p>基於透明與負責任的原則，本課程鼓勵學生利用 AI 進行協作或互學，以提升本門課產出品質。根據本校公布之「大學教育場域 AI 協作、共學與素養培養指引」，本門課程採取有條件開放，以下說明如何使用生成式 AI 於課程產出：</p> <ul style="list-style-type: none"> <li>• 學生須於課堂作業或報告中的「標題頁註腳」或「引用文獻後」簡要說明如何使用生成式 AI 進行議題發想、文句潤飾或結構參考等使用方式。若經查核使用卻無在作業或報告中標明，教師、學校或相關單位有權重新針對作業或報告重新評分或不予計分。</li> <li>• 本門課授課教材或學習資料若有引用自生成式 AI，教師也將在投影片或口頭標注。</li> </ul> <p>修讀本課程之學生於選課時視為同意以上倫理聲明。</p>	