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| 課程流水號 Serial Number | 24029 |
| 課號 Course Number | LS6018 |
| 班次 Class | A |
| 科目名稱(中文) Course Title(in Chinese) | 專題討論IV |
| 科目名稱(外文) Course Title(In English or other languages) | Seminar IV |
| 授課老師(中文) Instructor(in Chinese) | 陳世勳 |
| 授課老師(外文) Instructor(In English or other languages) | |
| 辦公時間(中文) Office Hour(in Chinese) | Tue. 10:00-12:00 AM |
| 辦公時間(外文) Office Hour(In English or other languages) | Tue. 10:00-12:00 AM |
| 課程目標(中文) Course Objective(in Chinese) | 訓練學生從教課書的內容之外獨立思考的能力。自己發掘問(議)題、收集資料、吸收整理，然後以報告的方式呈現心得。 |
| 課程目標(外文) Course Objective(In English or other languages) | To train student for independent thinking and learning of the broad field of biology. |
| 授課內容(中文) Course Description(in Chinese) | <ol style="list-style-type: none"> 1. Global warming and its effects on living organism 2. Plant heat tolerance 3. Plant sugar sensing 4. MYB transcription factors in plant responses to environmental stress 5. RNA helicase and plant stress acclimation 6. RNA silencing for crop improvement 7. Signal transduction of neuron cells |

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| | <ol style="list-style-type: none"> 8. Water transport and aquaporin 9. Mid-term discussion 10. Microbial remediation 11. Microbial bio-farming 12. Environmental hormone 13. Bio-fuel 14. Detergent and environment 15. Biological clock 16. G protein coupled signal transduction 17. Molecular pain 18. Final conclusion and discussion |
| 授課內容(外文) Course Description(In English or other languages) | <ol style="list-style-type: none"> 1. Global warming and its effects on living organism 2. Plant heat tolerance 3. Plant sugar sensing 4. MYB transcription factors in plant responses to environmental stress 5. RNA helicase and plant stress acclimation 6. RNA silencing for crop improvement 7. Signal transduction of neuron cells 8. Water transport and aquaporin 9. Mid-term discussion 10. Microbial remediation 11. Microbial bio-farming 12. Environmental hormone 13. Bio-fuel 14. Detergent and environment 15. Biological clock 16. G protein coupled signal transduction 17. Molecular pain 18. Final conclusion and discussion |
| 教科書/參考書(中文) Textbook/References(in Chinese) | Articles from related SCI jouranls. |
| 教科書/參考書(外文) Textbook/References(In English or other languages) | Articles from related SCI jouranls. |
| 自編教材比例 Self-compiled Textbook/References Proportion | |
| 授課方式 Requirements | 研討Seminar 個別指導Individual Discussion |

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| 評量配分比重(中文) Grading(in Chinese) | 1. Oral presentation: 70% 2. Discussion and participation: 30% |
| 評量配分比重(外文) Grading(In English or other languages) | 1. Oral presentation: 70% 2. Discussion and participation: 30% |
| 課程所屬學制 Educational System | 碩士班(Master Programs) |
| 課程領域 Course Domain | 基礎學科 |
| 跨系課程領域 Cross Department Course Domain | |

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| 強度指數 Overall Rating 系所核心能力 Core Competencies of Department | 0 | 1 | | | | 5 | 評量方式 Corresponding Assessments |
| | 不具備 | 非常低 | 2 低 | 3 普通 | 4 高 | 非常高 | |
| | Zero | Very Low | Low | Medium | High | Very High | |

| 強度指數 Overall Rating 系所核心能力 Core Competencies of Department | 0 不 具 備 Zero | 1 非 常 低 Very Low | 2 低 Low | 3 普通 Medium | 4 高 High | 5 非 常 高 Very High | 評量方式 Corresponding Assessments |
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| 生物專業知識 Biological Sciences | ● | ● | ● | ● | ● | ● | <ul style="list-style-type: none"> <input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input checked="" type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment) |

| 強度指數 Overall Rating 系所核心能力 Core Competencies of Department | 0 不 具 備 Zero | 1 非 常 低 Very Low | 2 低 Low | 3 普通 Medium | 4 高 High | 5 非 常 高 Very High | 評量方式 Corresponding Assessments |
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| 科學問題解決 Scientific Problem solving | ○ | ○ | ○ | ○ | ○ | ○ | <ul style="list-style-type: none"> <input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input checked="" type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment) |

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| 生物科學論文寫作 Scientific writing in Biological Sciences | ● | ● | ● | ● | ● | ● | <ul style="list-style-type: none"> <input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input checked="" type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment) |

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| 獨立思考與研究 Independent thinking and research | ○ | ○ | ○ | ○ | ○ | ○ | <ul style="list-style-type: none"> <input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input checked="" type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment) |

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|----------------------------------------------------------------------------|------------------------------|-------------------------------------|-------------------|-----------------------|--------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 專業表達 Professional presentation | ○ | ○ | ○ | ○ | ○ | ○ | <ul style="list-style-type: none"> <input type="checkbox"/> 紙筆測驗/會考 (Test/Exam) <input type="checkbox"/> 作業練習 (Assignments) <input checked="" type="checkbox"/> 口頭報告/口試 (Presentation/Oral Exam) <input checked="" type="checkbox"/> 專題研究報告(書面) (Research Report(printed on paper)) <input type="checkbox"/> 實作/實驗 (Practices/Experiments) <input checked="" type="checkbox"/> 出席/課堂表現 (Attendance/Performance) <input type="checkbox"/> 學習檔案評量 (Portfolios Assessment) <input type="checkbox"/> 自我評量/同儕互評 (Self Assessment/ Peer Assessment) <input type="checkbox"/> 作品/創作展演 (Products/Creative Performance) <input type="checkbox"/> 其他(Others) <input type="checkbox"/> 無(No assessment) |