**熱帶農業暨國際合作 系(所) 博士班 課程與核心能力之關聯檢核表**

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| **核心能力****Core Capabilities** | **能力指標與核心素養****Capabilities Index and** **Core Accomplishment** | **對應課程****Related Courses** | **檢核機制** **Evaluation** |
| 1. 具熱帶農業動物或植物專業研究與管理能力。Demonstration of the ability on R&D and management in animal or plant productions. | 1.具資訊處理編排能力。Demonstrate organization and handling of information.2.具危機思考。Demonstrate critical thinking3.具團隊工作。Demonstrate teamwork | 1.專題討論 Seminar2.科學研究方法 Scientific Research Methods | 1.口頭發表 Oral Presentations2.筆試 Written Exams |
| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. | 1.具計畫規劃及專業發展。 Demonstrate Program Planning Skills and Professional Development2.具科學儀器控制、理論證實及實做知識。 Operate scientific equipment and demonstrate theory & practical knowledge3.具討論及危機思考能力。  Demonstrate critical and creative thinking  | 1.科學研究方法 Scientific Research Methods2. 專題討論 Seminar3.應用華語（1）Applied Mandarin (1)4. 應用華語（2）Applied Mandarin (2) | 1.口頭發表 Oral Presentations2.筆試 Written Exams |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. | 1.具發展研究計畫能力。Demonstrate abilities to develop research projects2.具計畫規劃整合能力。Demonstrate ability to plan and integrate programs | 1.科學研究方法 Scientific Research Methods2. 進階專技英文寫作Advanced Scientific Writing3. 專題討論 Seminar | 1.口頭發表 Oral Presentations2.筆試與口頭發表 Written and Oral Exams |

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| 1. 具熱帶農業動物或植物專業研究與管理能力。Demonstration of the ability on R&D and management in animal or plant productions. | 1.具備農業動植物專業研究與管理所需之統計分析與設計研究之能力。Demonstration of professional knowledge in statistical analysis and experimental design for managing R&D and animal or plant productions.2.具備儀器操作技術Operate to equipment skills | 1.試驗設計及數據分析Experimental design and data analysis2. 自然資源之利用與生產Utilization and Production of Natural Resources3. 穿透式電子顯微鏡特論Special Topic of Transmission Electron Microscopy (TEM) 4. 迴歸分析Regression Analysis | 筆試Written exams |
| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. | 具備獨立設計科學試驗，並分析資數之能力。Demonstration of professionally knowledge in statistical analysis and experimental design to conduct and scientific research independently and innovatively..  | 1.試驗設計及數據分析Experimental design and data analysis2. 專題研究（1）Special Research Project（1）3. 專題研究（2）Special Research Project（2） | 筆試Written exams |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. | 具備以英文規劃執行國際合作計劃之能力。Demonstration of the ability to use English proficiently in R&D, planning and executing international cooperation projects. | 1.試驗設計及數據分析Experimental design and data analysis | 筆試皆以英文進行Exams are all in English. |

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| 1. 具熱帶農業動物或植物專業研究與管理能力。Demonstration of the ability on R&D and management in animal or plant productions. | 1.具資訊處理編排能力。Demonstrate information handling and organization.2. 認知世界農糧食作物生產情形、供需概況及未來展望Knowledge of world crop production, food supply and demand, and the future development | 1.國際農業發展趨勢特論Special Topics on Development Trends of International Agriculture2. 博士論文Dissertation3. 農業政策與經濟特論Special Topics on Agriculture Policies and Economics4. 鄉村研究之理論架構及實證應用Theoretical Frameworks and Empirical Application in Rural Research5. 人口與糧食Population and Food | 筆試及實做測驗Written and Technical Skills exam. |
| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. | 1.團隊合作Demonstrate team work.2.具資訊處理編排能力。Demonstrate ability of handling and organizing information. 3.具公眾演說及學術寫作能力。Demonstrate skills in public speaking and academic writing. | 1.國際農業發展趨勢特論Special Topics on Development Trends of International Agriculture2. 博士論文Dissertation3. 農業政策與經濟特論Special Topics on Agriculture Policies and Economics4. 高等人力資源管理Advanced Human Resource Management | 1.學生口頭報告Student Presentations.2.筆試及口試Written and Oral Exams. |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. | 1.團隊合作。Demonstrate Team work.2.培養儀器操作技巧。Develop skills in operating equipment.3.具國際農業系統了解能力。Demonstrate understanding of international agriculture systems.4.具危機思考能力。Demonstrate critical thinking.  |  | 筆試及口試Written and Oral Exams. |

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| 1. 具熱帶農業動物或植物專業研究與管理能力。Demonstration of the ability on R&D and management in animal or plant productions. | 1.認知世界農糧食作物生產情形、供需概況及未來展望Knowledge of world crop production, food supply and demand, and the future development2.認識農業歷史、農藝作物特徵、生育情形、生產方式及生態角色Understanding the development of agriculture, botany of food crops, crop growth and improvement, and agroecosystems3.具備栽種一般農藝作物及園藝作物之基本技能Ability to grow general agronomic and horticultural crops4.認識各種作物、生產系統及影響作物之環境因子Knowledge of basic principles of crop science: science of crop plants and soil, development of crop production, and environmental factors affecting crops5.具備栽種糧食作物之基本技能Ability to cultivate food crops6.認識土壤與肥料之基本特性、功能及與作物之關係Knowledge of soil science and fertilizers, their functions, and relationships with crop plants7.具備分析土壤物理化學性質及肥料施用之技能Skills in basic soil analysis and fertilizer application 8.具備植物保護之基本技能 Ability to protect plants9.具備作物育種之基本技能 Ability to breed crops  | 1. 高等蔬菜作物Advanced Olericulture2. 草坪生理及管理Turf Physiology and Management3. 蘭花學Orchidology4. 高等熱帶果樹Advanced Tropical Fruits Science5. 高等花卉學Advanced Floriculture | 1.課堂答問A＆Q in the class2.筆試Paper test3.報告Report4.實際操作Practice |
| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. |  |  |  |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. |  |  |  |

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| 1. 具熱帶農業動物或植物專業研究與管理能力。Demonstration of the ability on R&D and management in animal or plant productions. | 1.具備分子與基因知識With the knowledge of molecular and genes2.具備分子工程知識 Demonstrate the knowledge of molecular engineering  | 分子診斷技術學Molecular-based Diagnostic Techniques酵素與蛋白質工程學Enzyme and Protein Engineering分子病毒學Molecular Virology基因表現系統Genetic Expression System | 1.進行筆試檢視學生應具備的基本知識Paper test for the knowledge2.繳交書面報告檢視學生彙整相關資料能力Evaluate term paper or final report students submitted |
| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. | 1. 具備分子工程操作技術

Operate to molecular engineering skill | 酵素與蛋白質工程學Enzyme and Protein Engineering基因表現系統Genetic Expression System | 1.進行筆試檢視學生應具備的基本知識Paper test for the knowledge2.繳交書面報告檢視學生彙整相關資料能力Evaluate term paper or final report students submitted3.現場實際操作檢視學生繁養殖技術能力Evaluate the techniques students learned in field |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. |  |  |  |

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| 2. 具獨立科學研究與創新能力。Demonstration of the ability to conduct scientific research independently and innovatively. |  |  |  |
| 3. 具研究發展與規劃執行國際合作計畫之知識與技能。Demonstration of the knowledge and ability of R&D, planning and executing international cooperation projects. |  |  |  |