



## JAMES COOK UNIVERSITY

By the authority of the Council we certify that

**SANTIAGO JR. TORDA PENA**

has on 25 October 2018 been admitted to the degree of

**Doctor of Philosophy**

Given under the seal of the  
James Cook University

Chancellor

Vice-Chancellor  
and President



## STATEMENT OF ACADEMIC RECORD

**Santiago Jr. Torda Pena**

21-Jul-2022

STUDENT NUMBER 11646440

Page 1 of 2

### Awards

06-Dec-2007 MASTER OF TROPICAL VETERINARY SCIENCE Conferred  
25-Oct-2018 DOCTOR OF PHILOSOPHY Conferred

### Course Summary

Year	Course Title	GPA	Credit Points
2004	Graduate Diploma of Research Methods (79007)	5.38	24
2005	Master of Tropical Veterinary Science (75203)		
2006	Master of Tropical Veterinary Science (75203)		
2007	Master of Tropical Veterinary Science (75203)		
2008	Master of Tropical Veterinary Science (75203)		
2013	Doctor of Philosophy (MHMS) (79502)		
2014	Doctor of Philosophy (MHMS) (79502)		
2015	Doctor of Philosophy (MHMS) (79502)		
2016	Doctor of Philosophy (MHMS) (79502)		
2017	Doctor of Philosophy (MHMS) (79502)		
2018	Doctor of Philosophy (MHMS) (79502)		

### Graduate Diploma of Research Methods

Year	Subject	Title	Credit Points	Grade
<b>Completed Subjects</b>				
2004	TV5311	Research and Dissertation	12	C
	PP5005	Special Topics in Physiology	3	D
	TV5020	Animal Production	3	C
	TV5320	Dissertation	3	C
	ZL5003	Biometrics	3	HD
<b>COURSE GPA: 5.38</b>			<b>Total Credit Points</b>	<b>24</b>

### Master of Tropical Veterinary Science

Year	Subject	Title	
2005	1st half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Enrolled
	2nd half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Research continuing
2006	1st half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Research continuing
	2nd half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Research continuing
2007	1st half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Under Examination
	2nd half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Under Examination
2008	1st half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Under Examination
	2nd half MR7226	Masters Research Thesis (Tropical Veterinary Science)	Completed

Thesis Title: Boar Spermatozoa Develop Ability to Bind to Oviduct Epithelium During Passage Through the Epididymis  
Thesis Submission Date: 24-Apr-2007

Student Number 11646440 Continued Next Page

For current and historic result schemas refer to:

<https://www.jcu.edu.au/students/exams-and-results/subject-results-and-grades-explained>

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## STATEMENT OF ACADEMIC RECORD

**Santiago Jr. Torda Pena**

21-Jul-2022

STUDENT NUMBER 11646440

Page 2 of 2

### Doctor of Philosophy (MHMS)

Year	Subject	Title	
2013	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Enrolled</b>
2014	1st half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
2015	1st half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
2016	1st half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
2017	1st half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Research continuing</b>
2018	1st half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Under Examination</b>
	2nd half	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science) <b>Completed</b>
		Thesis Title:	Revisiting summer infertility in the boar: impact of heat stress on the quality and DNA integrity of spermatozoa, and its mitigation by antioxidant therapy
		Thesis Submission Date:	28-Jan-2018

**End of Record - 11646440**

For current and historic result schemas refer to:

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## The Graduate

Name

Santiago Jr. Torda Pena

Student Number

11646440

## The Award

Name of Award

DOCTOR OF PHILOSOPHY

Detail

Admission to the Doctor of Philosophy requires a bachelors degree graduate honours (first class or second class honours division A) that includes a major project component, a masters degree by research degree, or equivalent evidence of research capacity. The Doctor of Philosophy is a (post)graduate research course that normally takes the equivalent of at least 3 years of full-time study to complete. Candidates undertake supervised research training in an area of specialisation, and complete a major research thesis, normally written in English, that is independently assessed, by at least two examiners external to the university, on the basis of its contribution to knowledge.

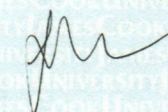
## Awarding Institution

James Cook University is a research intensive education institution established by an Act of the Queensland Parliament in 1970 and is listed as an Australian University on the Tertiary Education Quality and Standards Agency's National Register of Higher Education Providers. The University has a reputation for high quality education and world-class research, with a focus on providing leadership and innovation for the tropics. The University's Commonwealth Register of Institutions and Courses for Overseas Students number is 00117J. Further information about James Cook University can be found at [www.jcu.edu.au](http://www.jcu.edu.au)

The Australian Higher Education Graduation Statement is provided by Australian higher education institutions to graduating students on completion of the requirements for a particular higher education award. It provides a description of the nature, level, context and status of studies that were pursued by the individual named. Its purpose is to assist in both national and international recognition of Australian qualifications and to promote international mobility and professional recognition of graduates.

## Certification

Date: 25th October 2018



**Jodie Midson**  
Director, Student Services



## Graduate's Academic Achievements

DOCTOR OF PHILOSOPHY  
Conferred 25th October 2018

### Completed Subjects

2013	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Enrolled
2014	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Research continuing
2015	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Research continuing
2016	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Research continuing
2017	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Research continuing
2018	PI7226	Doctor of Philosophy Research Thesis (Tropical Veterinary Science)	Completed

**Thesis** Revisiting summer infertility in the boar: impact of heat stress on the quality and DNA integrity of spermatozoa, and its mitigation by antioxidant therapy

**Abstract** Santiago Pena demonstrated increased boar sperm DNA damage due to heat stress during tropical summer, a potential factor associated with summer infertility in the pig. Santiago formulated an antioxidant supplement that could mitigate the impact of heat stress and improve pig production and profits by pig producers in the tropics.

### Additional course details

#### Professional Development

Completed 28 hours of required compulsory workshops:

- HDR Induction Day
- Preparing for Confirmation of Candidature
- Introduction to Professional Writing and Editing
- Research Integrity
- Plagiarism and iThenticate
- Data Storage and Management
- Intellectual Property and Copyright
- Resilient HDR Candidature
- Research methods in Literature Review Module
- Skills for International Postgraduates (SKIP) Program
- JCU Work Health and Safety Induction

### Key to grading

The degree is awarded on the basis of the thesis which is not graded. Outstanding candidates may have the Doctor of Philosophy degree awarded *Cum Laude* if this commendation is independently recommended by two external examiners. Any credit-based subjects included in the course make use of the following grading scheme:

#### Pass grades

- HD Pass with High Distinction
- D Pass with Distinction
- C Pass with Credit
- P Pass
- PC Pass Conceded
- P- Pass Minus
- S Satisfactory (a passing level in an ungraded subject)



#### Fail grades

- N** Fail
- U** Unsatisfactory (failed to reach a passing level in an ungraded subject)
- WF** Fail (withdrew after the prescribed date for withdrawal without academic penalty)
- X** Fail (did not sit for examination(s) or did not complete at least 80% of assessment requirements, or deferred exam not granted). Prior to 2008, this grade was also used for subjects that were withdrawn after the academic penalty date.

## Description of the Australian Higher Education System

### Introduction

The Australian higher education system consists of self-governing public and private universities and higher education institutions that award higher education qualifications.

### The Australian Qualifications Framework

The Australian Qualifications Framework (AQF) is a single national, comprehensive system of qualifications offered by higher education institutions (including universities), vocational education and training institutions and secondary schools.

The AQF has 10 levels, each with defined criteria based on a taxonomy of learning outcomes. Higher education qualifications are placed between level 5 (the Diploma) and level 10 (the Doctoral Degree). The Bachelor Degree is at level 7. Each AQF qualification has a set of descriptors which define the type and complexity of knowledge, skills and application of the knowledge and skills that a graduate who has been awarded that qualification has attained, and the typical volume of learning associated with that qualification type. The full set of levels criteria and qualification type descriptors can be found by visiting [www.aqf.edu.au](http://www.aqf.edu.au).

The main AQF qualifications awarded by higher education institutions are Bachelor Degrees, Masters Degrees and Doctoral Degrees. There are also three qualifications at the sub-degree level: the Diploma, the Advanced Diploma and the Associate Degree. At the graduate level but below the Masters Degree are the Graduate Certificate and Graduate Diploma.



Level	Summary	Qualification Type
Level 1	Graduates at this level will have knowledge and skills for initial work, community involvement and/or further learning	Certificate I
Level 2	Graduates at this level will have knowledge and skills for work in a defined context and/or further learning	Certificate II
Level 3	Graduates at this level will have theoretical and practical knowledge and skills for work and/or further learning	Certificate III
Level 4	Graduates at this level will have theoretical and practical knowledge and skills for specialised and/or skilled work and/or further learning	Certificate IV
Level 5	Graduates at this level will have specialised knowledge and skills for paraprofessional work and/or further learning	Diploma
Level 6	Graduates at this level will have broad knowledge and skills for paraprofessional and/or highly skilled work and/or further learning	Advanced Diploma Associate Degree
Level 7	Graduates at this level will have broad and coherent knowledge and skills for professional work and/or further learning	Bachelor Degree
Level 8	Graduates at this level will have advanced knowledge and skills for professional highly skilled work and/or further learning	Bachelor Honours Degree Graduate Certificate Graduate Diploma
Level 9	Graduates at this level will have specialised knowledge and skills for research, and/or professional practice and/or further learning	Masters Degree



Level 10 Graduates at this level will have systematic and critical understanding of a complex field of learning and specialised research skills for the advancement of learning and/or for professional practice

Doctoral Degree

### Admission

Requirements for admission to particular awards are set by higher education institutions and provide a range of routes for entry and only admit those students considered to have potential to complete an award successfully. Admission of school leavers to undergraduate awards is typically on the basis of the level of achievement in Year 12 secondary education, although some institutions and awards also use interviews, portfolios or demonstrated interest or aptitude. Most institutions also provide alternative entry provisions via bridging or foundation programs for mature age students or other special provisions, such as recognition of prior learning from previous study. Admission to post-graduate awards is generally based on the level of achievement in previous higher education studies and in most cases, admission to PhD awards is based on high achievement in a research Masters Degree or in a Bachelor Degree with first class honours or second class honours division A.

### Quality

Quality assurance and stringent approval requirements for higher education institutions ensure that Australia has an international reputation for high quality education.

The Tertiary Education Quality and Standards Agency (TEQSA) was established on 30 July 2011 as a new national regulator and quality assurance agency for higher education. TEQSA is an independent body with the powers to regulate university and non-university higher education providers and monitor quality against standards.

From 29 January 2012 TEQSA assumed responsibility for registering and re-registering providers and accrediting and re-accrediting awards for higher education providers that do not have authority to accredit their own awards. At the time of registration, re-registration, accreditation and/or re-accreditation, TEQSA evaluates the performance of a higher education provider against the Higher Education Standards Framework. The Standards Framework comprises: Provider Registration, Category and Course Accreditation Standards and Qualification Standards (based on the AQF). The Higher Education Standards Panel, which is independent from TEQSA, is responsible for developing and monitoring the Standards Framework.

TEQSA also undertakes quality assessments of individual providers or reviews issues within the sector across a cohort (thematic reviews). These reviews help to identify sectoral good practice, guide sectoral quality enhancement and inform policy and research.

TEQSA's primary aim is to ensure that students receive a high quality education at any of Australia's higher education institutions.

All higher education institutions receiving Australian Government financial support must meet quality and accountability requirements that are set out in the Higher Education Support Act 2003. The Australian Government also uses a range of tools to measure and monitor the quality of outcomes, while the interests of international students are protected by the Education Services for Overseas Students Act 2000 and the Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS), providing tuition assurance and ensuring that institutions listed on CRICOS meet defined minimum standards.



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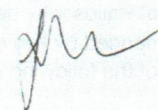
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**Date:** 25th October 2018



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Director, Student Services