

*Invited Editorial*

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## **Exercise Science Academic Programs and Research in the Philippines**

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### ABSTRACT

*Int J Exerc Sci* 3(4) : 157-164, 2010. In this invited editorial, professors from leading institutions in the Philippines, share information regarding their programs relating to Exercise Science. They have provided information on academic components such as entrance requirements, progression through programs, and professional opportunities available to students following completion; as well as details regarding funding available to students to participate in research, collaboration, and specific research interests.

KEY WORDS: University of the Philippines – Diliman, University of Santo Tomas, academic curriculum in Exercise and Sport Science, exercise physiology research

### INTRODUCTION

Norberto Madrigal, MSPE is an Assistant Professor at the College of Human Kinetics for more than 15 years, University of the Philippines – Diliman. He is the Exercise Science Laboratory coordinator. Aside from teaching, He is also active in providing sports science intervention to the Philippine Finswimming Team. His research interests focus on anthropometry and performance analysis.

Jeffrey Pagaduan, CSCS is the strength and conditioning coach of Varsity Office, College Human Kinetics, University of the Philippines. He is currently taking his Master's in Applied Sport and Exercise at Staffordshire University, UK. He is an active volunteer of the Exercise Science

Laboratory. He will be teaching on the 2<sup>nd</sup> semester of SY 2010-2011 at the College of Human Kinetics, University of the Philippines – Diliman. He is a founding member of the Philippine Association for Sport and Exercise Sciences. His research interests include strength and conditioning, sport psychology, and Basketball match analysis.

Josephine Joy Reyes is presently the Chair of the Sports Science Department of the College of Rehabilitation Sciences at the University of Santo Tomas. Concurrently, she holds a consultancy position as Head of the Sports Physiology Unit of the Philippine Center for Sports Medicine-Philippine Sports Commission, a Researcher of the Center for Research on Movement Science at the University of

Santo Tomas. She finished her Masters in Physical Education at the University of the Philippines, Diliman. It is also in the same University where she acquired her Bachelor's degree in Physical Education and Certificate in Sports.

Reil Vinard Espino, CSCS is an instructor at the Sports Science Department, College of Rehabilitation Sciences, University of Santo Tomas. He is currently finishing his Master's degree in Human Movement Science at the College of Human Kinetics, University of the Philippines, Diliman. Reil Vinard is a founding member of the Philippine Association for Sport and Exercise Sciences.

### **BACKGROUND OF THE UNIVERSITIES**

The University of the Philippines was established on June 18, 1908 to provide the highest seat of learning to Filipinos of great minds who were to assume critical social and political posts in the society. Since then, it has produced some notable alumni which include 7 out of 15 Philippine Presidents, 12 Chief Justices of the Supreme Court, 36 out of 57 National Artists and 34 out of 35 National Scientists. The university has the most national centers of excellence and development among higher education institutions in the country. The University of the Philippines System has 7 constituent universities situated in 12 campuses in the country.

In 1933, the College of Education instituted the Bachelor of Physical education degree to provide the growing demands of fully trained teachers in the field of physical education. The expansion of Physical Education training instruction under the College of Education occurred during the

administration of Professor Agustin Cailao (1964-1972) who served as the director of the Department of Physical Education. It was in this period where the Master of Arts in Teaching (M.A.T) physical education course was offered. Also, the University of the Philippines and Department of Education formed the Institute of Physical Education where lessons in physical education and coaching were administered to teacher-students from all over the country. After Director Cailao, the status of the Department of Physical Education was changed to Institute of Sports, Physical Education and Recreation (SPEAR) through the continued efforts of Professor Aparicio Mequi (1973-1983). The SPEAR, housed in a former United States Army Recreation Building, offered 5 undergraduate courses (1. B.P.E. - general; 2. B.P.E. - major in dance; 3. B.P.E. - major in recreation; 4. B.P.E. - major in recreation; and, 5. Certificate in Physical Education) and 2 graduate programs (Master of Science in Physical Education and Master of Physical Education). In this era, students from Asian countries flock SPEAR to acquire teaching and coaching competencies. SPEAR was uplifted to College of Human Kinetics in the early 90s. For almost 20 years as a college, it is the leading institution in producing outstanding teachers and sports science practitioners. Currently, there are 3 undergraduate degree offerings (1. Certificate in Sports Science; 2. Bachelor in Physical Education; 3. Bachelor in Sports Science), a Diploma in Exercise and Sports Science degree, a Master of Science in Human Movement Science degree specializing in physical education, leisure studies or exercise science.

Profs. Reyes and Espino: The Pontifical and Royal University of Santo Tomas, The

Catholic University of the Philippines, is the oldest existing university in Asia. Established in 1611, it dedicates herself to the pursuit of Truth through the production, advancement, and transmission of knowledge for the formation of competent and compassionate professionals, committed to the service of the Church, the nation, and the global community. It envisions herself as a globally-recognized institution of higher learning, actualizing the professional and moral formation of her students, and effecting social transformation. For this, it offers 64 graduation courses and 54 courses of Master and PhD degree.

The College of Rehabilitation Sciences is an academic institution composed of dedicated Catholic academics competent in their respective fields of expertise who are committed to develop highly skilled, morally upright, compassionate and dynamic allied rehabilitation professionals by providing quality education, research opportunities, clinical and postgraduate training in order to meet the evolving health care needs of the Filipino society and the global community. It's main objective is to develop Christian allied rehabilitation professionals who are fully competent in utilizing selected knowledge and skills in planning, organizing, directing and implementing programs for the care of individuals whose ability to function is impaired or threatened by disease or injury. In fulfilment of this commitment, the College offers the following undergraduate courses: Bachelor of Science in Physical Therapy, Occupational Therapy, Sports Science, and Speech-Language Pathology. Presently, the entire student population is 1000, of which 135 are Sports Science students.

The Sports Science program was offered in the year 2002 to develop professionals for a multidisciplinary field concerned with the comprehensive understanding of the scientific basis of sporting performance including general physical activity pursuits such as goal-oriented fitness regimens, wellness programs, and recreational sports as well as elite sports and enhancement of athletic performance.

### ACADEMIC CURRICULUM

Profs Reyes and Espino: The Bachelor of Science in Sports Science is an undergraduate academic program of the College of Rehabilitation Sciences of the University of Santo Tomas. The requirements for entrance are as follows: first they have to pass the entrance examination with desired cut-off scores in Math, English and Science as a standard requisite and an IQ score of 100 determined by the Head of the Sports Science Department and approved by the Dean of the College to ensure the eligibility of the applicants to enroll in the program. Second, all applicants who passed the entrance examination are required to undergo an interview and must accomplish a PARQ and third, applicants must submit two good morale certifications from the school principal, guidance counselor or class adviser and upon admission the original copy of the scholastic record. Prospective students are able to confirm their admission details on the university website ([www.ust.edu.ph](http://www.ust.edu.ph)) under the admissions link.

Profs. Pagaduan and Madrigal: For freshmen applicants there are two possibilities: 1. University of the Philippines

College Admission Test (UPCAT); and, Varsity Athletic Admission System (VAAS). An applicant with an UPCAT score of 2.5 qualifies for the physical education program and 2.25 for the sports science program. The VAAS is an alternative admission scheme awarded to an eligible athlete who did not take or pass the UPCAT standard grade requirement for undergraduate courses in the college. If an athlete did not take the UPCAT, the graded weighted average from 1st year to 4th year should be 85%. On the other hand, the UPCAT grade requirement for VAAS is 2.8 or better. Grade requirement comes along with the recommendation of the coach which is approved by a selection committee. The grading system that we use in the university is as follows: 1.0 (Excellent), 1.25, 1.5 (Very Good), 1.75, 2.0 (Good), 2.25, 2.5 (Satisfactory), 2.75, 3.0 (Pass), 4.0 (Conditional Failure), INC (Incomplete), and 5.0 (Fail).

For transferees and shiftees from other colleges and continuation from a certificate degree to a bachelor's degree, applicants should qualify the grade weighted average of 2.25 for Sports Science and 2.5 for the Physical Education. For transferees from other universities, it's 2.0 for Sports Science and PE. There are only less than 10 slots awarded to transferees from other universities every school year.

For the Master in Human Movement Science graduate course, applicants should pass the college-based entrance exam and panel interview composed of faculty members from the college.

Profs. Reyes and Espino: Like most of the Catholic and Private Universities here in the Philippines, the academic year is

divided into two semesters consisting of three shifting periods per semester and an optional one and a half months of summer session. The first semester commences usually on the second week of June until the third week of October followed by a short break then second semester begins first week of November until third week of March. As a Royal Pontifical Catholic University in the Philippines, the University of Santo Tomas, celebrates and observes the following school and national holidays in a typical school calendar: Manila Day (June); Feast of St. Dominic, Ninoy Aquino Day and National Heroes Day (August); College Days for 3 days (September); All Souls and All Saints Day; Bonifacio Day (November); Feast of Immaculate Concepcion, University-wide Christmas Festivities and Christmas break (December); Feast of the Black Nazarene, Feast of St. Thomas Aquinas (January).

Profs. Reyes and Espino: B.S. Sports Science is a four-year course involving two years of general education courses which already includes an introduction to Basic Human Anatomy and Physiology, Psychological Basis of Human Performance, Health Promotions and Historical & Philosophical Foundations of PE and Sport. In the third year, there are opportunities to become involved in practical work and also laboratory-based settings where students will be given a hands-on experience in the assessment of performance; manage and organize sports-related activities/events; facilitates in the officiating and coaching of sports club culminating activities. The final year emphasizes on the development of skills relating to the application across a wide range of the sciences in the following areas exercise physiology, exercise prescription, assessment and evaluation of

sports performances, sports psychology and nutrition, exercise rehabilitation and sports emergencies, pharmacology and research methodology. As a requirement, the graduating student-intern undergoes a 10-month extensive internship program to affiliated fitness training centers, health and wellness centers, professional sports associations and agencies, performance related research centers and school-based physical education and athletic programs on a maximum of two months rotation. They are also given the opportunity but optional to attend an international academic exposure trip for 3 days in a Sports Institute in Asia most recent were at the Institute of Human Performance of the University of Hong Kong and Hong Kong Sports Institute. Also during the internship period, they have their Sports Seminar course where they have a review of all the topics they tackled from 2<sup>nd</sup> year to third year. This also serves as a review class for the NSCA Certified Strength and Conditioning Specialist Exam and Certified Personal Trainer Exam.

At the start of the school year, student leaders as well as the teachers prepare for the Freshmen general and departmental orientation programs. Faculty advisers accompany their advisees to the annual retreat/recollection. The students as well as the faculty advisers of different college organizations and societies plan together for the College celebration. The fourth year graduating students as well as their thesis advisers are meeting regularly during the proposal and implementation of the research studies up to January until the final presentation in mid March.

Profs. Pagaduan and Madrigal: We have 2 regular semesters and an optional summer

intake. The academic schoolyear starts around the 2<sup>nd</sup> week of June and ends until the second week of October for the first semester. We have a 3 week break before the second semester. For the second semester, classes resume on the 2<sup>nd</sup> week of November until the first week of April. There's a Christmas break from the 3<sup>rd</sup> week of December until the first week of January. If a student enrolls in a summer class, he/she will start on the second week of April until the 3<sup>rd</sup> week of May. The major holidays for the academic year 2010-2011 are shown in table 1.

Table 1. Major holidays during the 2010-2011 academic year.

2010				2011				
Sat	1	May	Labor Day		Sat	1	January	New Year's Day
Mon	10	May	Election Day					
Mon	14	June	Independence Day (June 12, Sat)					
Sat	7	August	UPCAT (Diliman campus only) For AY 2011-2012 Admission		Fri	25	February	EDSA Day
Sun	8							
Thu	19	August	Quezon Day (QC only)		Sat	9	April	Araw ng Kagitingan
Mon	23	August	Ninoy Aquino Day (August 21, Sat)		Thu	21	April	Maundy Thursday
Mon	30	August	National Heroes Day (August 29, Sun)		Fri	22	April	Good Friday
Mon	1	November	All Saints' Day		Sun	1	May	Labor Day
Mon	29	November	Bonifacio Day (November 30, Tue)					
Fri	24	December	Additional Special Day (non-working)					
Sat	25	December	Christmas Day					
Mon	27	December	Rizal Day (December 30, Thu)					
Fri	31	December	Last Day of the Year					

The maximum number of units that a student can enroll per semester is 21 units for undergraduate and 18 units for the full-time graduate student in a regular semester. For a part-time graduate student, 10 units per semester is allowed. For the summer session, an undergraduate student can enroll up to 9 units. For a full-time graduate student it's not more than 6 units. For a part-time graduate student it's not more than 3 units. Each course is classified into a 3-unit or a 5-unit course. In a regular semester, a 3-unit course is held twice a week (T-Th or W-F) for 1.5 hours. Summer classes are held everyday for 1.5 hours following the same course-unit load. A 5-

unit class runs for 1.15 hours everyday (TThWF) in a regular semester and 3.15 hours (MTThWF) for summer.

The time of the year when the students are busiest happen before the end of the semester. Those times usually occur from last week of September to the 2nd week of October, last week of March to first week of April and last week of May.

Profs. Pagaduan and Madrigal: The sports science degree is in its transition year from a 5 year degree course to a new 4 year undertaking. For the new 4-year curriculum, the first two years are devoted to general education courses from Arts and Humanities (15 units), Math, Science and Technology (15 units) and Social Science and Philosophy (15 units). Some of the general courses are compulsory and the rest can be decided by the students until they complete the 15 unit requirement for each track. Students are also required to take Philippine Institution 100 (3 units) course and non-Human Kinetics (HK) courses (17 units). 6 units of general education courses must be in Philippine Studies in any domain. We also have elective activity courses (21 units). Another requirement for graduation is the completion of 6 units of National Service Training Program (NSTP) from Military Science/Reserve Officers' Training Course (ROTC) or Civic Welfare Training Service (CWTS). On the 2nd semester of the fourth year, internship course (3 units) and an individual thesis (3 units) are commenced.

In the physical education degree, students follow the same general education, Philippine Institution 100, ROTC or CWTS requirement as with the sports science degree. However, the non-HK required

courses is 8 or 9 units. The reason behind 8 or 9 credit units is the Math 17 course. A student may take Math 17 (5 units) or choose to take the equivalent of Math 17 which is Math 11 (3 units) and Math 14 (3 units). Students have also more HK-elective activity courses (32 units). Lastly, students have to undergo practice teaching during the last semester of the degree.

For the graduate course, there are 3 foundation courses: philosophy of movement science, research in human movement science and measurement and evaluation in human movement sciences. After that, students take courses from their chosen area of specialization (12 units), together with human movement science electives (9 units) and non-human movement science electives (3 units). On top of that graduate students have to complete 6 units of thesis.

Students from all level are free to choose their preferred class schedule and enroll using the computerized registration system (CRS). In cases where they are unsuccessful in getting their preferred class schedule, they usually look for an alternative through the manual registration.

Profs. Reyes and Espino: Most of our graduates work in hospitals as researchers or trainers, personal trainers, strength and conditioning coach of collegiate and professional teams, teaching and research. We also have graduates who went to medicine schools or pursue graduate studies.

Profs. Madrigal and Pagaduan: Most of our physical education degree and sports science degree graduates end up teaching physical education classes in educational

institutions. This is a dilemma that we're trying to address since our primary objective in establishing the sports science degree is to promote the field of sports science in the country. Through our alumni support and physical activity promotion campaign in the country, we are hopeful that our sports science graduates consider teaching as the least option in their career path. Aside from teaching, some of our PE and sports science graduates work in fitness and wellness centers. A handful of sports science graduates pursue medicine degree. Unfortunately, not all our PE and sports science graduates are provided with opportunities to work in the mentioned directions. Some take second-degree courses or work in contact centers.

In the graduate level, most of the students are teaching PE. Some are working in fitness and wellness centers as personal trainers and strength and conditioning coaches.

### RESEARCH INVESTIGATIONS

Profs. Reyes and Espino: Some faculty and graduate students participate in the local and international conferences and present the results of their research annually. The most recent was in the 2009 Australian Conference in Science and Medicine in Sports in Australia and 7<sup>th</sup> Pan Pacific Conference on Rehabilitation in Hong Kong.

Most faculty led research projects which most of these are, are proposed project according to their advisors research field. They are being submitted in the international journals with advisors in these days and a number of international publications is increasing as well.

Students present their piece of work during the Intern's paper and poster presentation held mid March as a requirement before they graduate. This research endeavor can also be presented along with their thesis advisors in an international or national conference.

Our sports science laboratory research interests are on anthropometric and physiologic profiling of university athletes, performance profiling of children and elite athletes and hydration research from university and professional athletes. Action research receive appropriate funding from university and private institutions.

Profs. Pagaduan and Madrigal: There are limited opportunities for students to participate in the research process. It is only made available to some faculty members who organize their class in a research-oriented setting. This means that those faculty members include a research project output as a requirement in their course.

Collaboration between the student and the professor is only done during the last year of course where the student takes the Research Methods course for the 1st semester. In the second semester, he/she is assigned to a faculty which serves as his/her thesis advisor. This only applies to sports science and master's degree. Some research findings are submitted to local and international for publication.

We have limited opportunities for funding research interests in the field. There were a few numbers of students who managed to acquire funding from government and private institutions during their thesis course. We are currently inviting

government and private institutions to provide funding for student and faculty research.

Through the CHK Sports Science Department, we try to organize one research symposium a year to allow students to present their research. In the said event, students from all level present their research output upon approval of a selection committee composed of faculty members in the college. We are also trying to revive Kinetika, a college-based publication for student and faculty research output.

In performance analysis, we have been collaborating with the National Institute of Physics - Video Biomechanics Team in quantitative research. We are also developing reliability studies for testing instruments using the Chronojump Project. The Chronojump Project is a freeware and open hardware introduced here in the Philippines by Xavi de Blas from University of Ramon Llull, Spain. We are also initializing research collaboration with the Signal Processing Team of the College of Electronics and Electrical Engineering and the Computer Vision and Machine Intelligence Group from the Department of Computer Science, College of Engineering from the same university to assist us in computer vision technology in performance analysis.

We think the major differences of our research program are the advocacy of the use of free software and the development of testing equipment. We collaborate with local and international researchers to assist us in test equipment conceptualization, development and familiarization. Once we are familiar with the technology, we share

our knowledge with other institutions and foster research collaboration. By promoting the idea that quantitative research is possible without using expensive testing equipment, we are attempting to build a research-based society for Filipinos, by Filipinos.

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