

An online summer school in anatomy and physiology for radiation protection and medical physics students

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Introduction

The Medical Physics department at the Faculty of Health Sciences together with the Physics department of the Faculty of Science of the University of Malta offer an interfaculty Bachelor's programme in Physics, Medical Physics and Radiation Protection. The entry requirements for the programme are the same as all other physics programmes of the university i.e., physics and mathematics. In addition to study units in Physics, Medical Physics and Radiation Protection the programme includes also study units in anatomy, physiology, pathology and healthcare ethics. Students join classes with regular undergraduate physics students for the physics study units and classes with regular healthcare professional students such as physiotherapy, radiography and medical laboratory for anatomy, physiology, pathology and healthcare ethics classes. This arrangement ensures that we produce students that are comfortable with both scientific and healthcare professional outlooks.

However, whilst healthcare professional students would have a pre-university background in biology (biology is a requirement to enter the bachelor programme of these professions) our students do not - putting them at a relative disadvantage. To address the concerns of the students it was imperative to set up a pre-bachelor summer school in anatomy and physiology specifically dedicated to our students.

Objectives

To design a curriculum for a pre-university online preparatory summer school in anatomy and physiology for high-school physics and mathematics students.

Methodology

- We studied the curriculum of pre-university biology and elicited the sections on human biology.
- We also identified the main textbook used by undergraduate non-medical healthcare professionals such as radiographers, nurses, physiotherapists (the book comes with a set of Powerpoint presentations)
- Since we envisaged that the first year will be the hardest for our students we also identified and focused extra attention to the anatomy and physiology study units that students would be taking in the first year of the Bachelor's programme in Physics, Medical Physics and Radiation Protection.

Results

The topics addressed during the summer school are the following:

- An orientation to the human body
- Basic chemistry and biochemistry
- Cells and Tissues
- Skin and body membranes
- The skeletal system
- The nervous system
- Blood
- The cardiovascular system
- The respiratory system
- The digestive system (including food metabolism)
- The urinary system

Conclusion

We are pleased to report that the summer school has been an unprecedented success. Indeed the summer school has bolstered student enrolment for the bachelor programme and we have solved in a permanent manner the seemingly perennial problem of dearth of physics graduates which was plaguing the radiation protection and medical physics professions. It has indeed been surprising with what enthusiasm physics and mathematics students have taken anatomy and physiology on board. We are also very much pleased to report that the examination results in these two subjects of our students have been totally on par with those of students from the other healthcare professions.

