1. KentVision Code and title of the module

PSCI7000 – Physical Science Research Investigation

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Natural Sciences (Physics and ASSA)

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 7

## The number of credits and the ECTS value which the module represents

15 Credits (7.5 ECTS)

## Which term(s) the module is to be taught in (or other teaching pattern)

Autumn and Spring

## Prerequisite and co-requisite modules and/or any module restrictions

None

## The course(s) of study to which the module contributes

Compulsory for the following courses:

BSc (Hons) Physics (all variants)

BSc (Hons) Physics with Astrophysics (all variants)

BSc (Hons) Astronomy, Space Science & Astrophysics (all variants)

MPhys Physics (all variants)

MPhys Physics with Astrophysics (all variants)

MPhys Astronomy, Space Science & Astrophysics (all variants)

Not available as an elective module

## The intended subject specific learning outcomes. On successfully completing the module students will be able to:

8.1 Demonstrate an ability to identify relevant principles and laws when dealing with problems, and to make approximations necessary to obtain solutions.

8.2 Demonstrate an ability to execute and analyse critically the results of an experiment or investigation and draw valid conclusions. To evaluate the level of uncertainty in these results and compare them with expected outcomes, theoretical predictions or with published data; thereby to evaluate the significance of their results in this context.

8.3 Demonstrate competent use of appropriate C&IT packages/systems for the analysis of data and the retrieval of appropriate information.

8.4 Demonstrate an ability to present and interpret information graphically.

8.5 Demonstrate an ability to communicate scientific information, in particular to produce clear and accurate scientific reports.

8.6 Demonstrate an ability to make use of appropriate texts, research-based materials or other learning resources as part of managing their own learning.

8.7 Demonstrate an ability to communicate complex scientific ideas, the conclusion of an experiment, investigation or project concisely, accurately and informatively.

8.8 Demonstrate an ability to make use of research articles and other primary sources.

## The intended generic learning outcomes. On successfully completing the module students will be able to:

9.1 Demonstrate investigative skills in the context of independent investigation including the use of textbooks and other available literature, databases, and the interaction with colleagues to extract important information.

9.2 Demonstrate communication skills in the area of dealing with surprising ideas and difficult concepts, including listening carefully, reading demanding texts and presenting complex information in a clear and concise manner. C&IT skills are an important element to this.

9.3 Demonstrate analytical skills associated with the need to pay attention to detail and to develop an ability to manipulate precise and intricate ideas, to construct logical arguments and to use technical language correctly.

9.4 Demonstrate the ability to work independently and as part of a group, to use initiative, to organise oneself to meet deadlines and to interact constructively with other people.

9.5 Demonstrate self-direction and originality in applying and adapting problem-solving skills to unfamiliar, complex and open-ended situations.

9.6 Demonstrate the independent learning ability required for continuing professional development.

9.7 Establish advanced research skills needed at a postgraduate level or graduate level in other sectors.

9.8 Demonstrate the capacity to undertake advanced scientific investigations, advanced problem solving and data analysis in a research environment.

## A synopsis of the curriculum

Students will develop a number of skills related to the investigation and planning of research such as analytical skills, critical thinking and ability to understand and communicate scientific information in graphically. Students will learn how to search and retrieve information from a variety of locations (colloquia, websites, journals, proceedings etc). They will learn how to compile professionally-produced scientific documents such as colloquia reports, posters and applications for funding of future research activities/research job applications. The Group research investigation strengthens these skills, adding experience of working in a team.

## Reading list

## The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

## The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

## Contact Hours

Private Study: 115

Contact Hours: 35

Total: 150

## Assessment methods

13.1 Main assessment methods

* Colloquium Report 1 (10 hours) – 20%
* Colloquium Report 2 (10 hours) – 20%
* Application Outline (4 hours) – 10%
* Group Research Project (30 hours) – 40%
* Poster Presentation of Project (10 hours) – 10%

13.2 Reassessment methods

* Like-for-like

## Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section 12) and methods of assessment (section 13)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 8.8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Lectures | **x** | **x** |  | **x** |  |  | **x** |  |  | **x** | **x** |  | **x** | **x** | **x** | **x** |
| Supervision | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.7 | 8.8 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 | 9.6 | 9.7 | 9.8 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Colloquium Reports |  | **x** |  |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Application Outline |  |  | **x** |  |  | **x** | **x** |  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Group Research Project | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Poster Presentation of Project | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

## Inclusive module design

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

Science is an international discipline with widely applicable international resonance. This module presents subject-specific knowledge generated, developed, and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the knowledge in a wide range of international contexts and these will be addressed in making the content relevant to current global issues. The Division of Natural Sciences is an international community of students and staff and group activities and teaching will provide a platform for internationally-focussed discussion.

**DIVISIONAL USE ONLY**

**Module record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

| Date approved | New/Major/minor revision | Start date of delivery of (revised) version | Section revised  (if applicable) | Impacts PLOs (Q6&7 cover sheet) |
| --- | --- | --- | --- | --- |
| 1 May 2020 | Minor | September 2020 | 10, 12-13 | No |
|  |  |  |  |  |