1. **Title of the module**

WCON5080 (DI508) Data Analysis for Conservation Biologists

1. **School or partner institution which will be responsible for management of the module**

School of Anthropology and Conservation

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 6

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

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

Spring

1. **Prerequisite and co-requisite modules**

None

1. **The programmes of study to which the module contributes**

BSc Wildlife Conservation,

BA Environmental Social Sciences

BSc Human Ecology

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

8.1 discuss the theoretical Normal Distribution, and its application to data analysis.

8.2 discuss null Hypotheses, Type I and II Errors, Sample Strategies, and Independence

8.3 discuss One- and Two-Tailed Tests.

8.4 discuss analysis of Variance (ANOVA), and Chi-Squared.

8.5 discuss Bivariate Data, Regression Analysis and Correlation Coefficients

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

9.1 understand, analyse and re-affirm statistical concepts, and their correct use and relevance to field biologists.

9.2 understand topics including measures of central tendency, frequency distributions, the normal distribution, standard errors, and how sample parameters, and null hypotheses apply in real biological situations.

9.3 understand further topics including one- and two-tailed tests, chi-squared test, correlations, regression analysis, and analysis of variance (ANOVA).

9.4 understand the role of probability in field biology, and its application to biological questions.

1. **A synopsis of the curriculum**

This course is designed to introduce and re-affirm statistical concepts, and their correct use and relevance to field biologists. Introductory topics will include measures of central tendency, frequency distributions, the normal distribution, standard errors, and how sample parameters, and null hypotheses apply in real biological situations. Further topics will include one- and two-tailed tests, chi-squared test, regression analysis, and analysis of variance. The role of probability in field biology will be considered, and its application to biological questions. Throughout, emphasis will be placed on practical application of statistics as much as possible, and when and how they are applied. Since there is both a theoretical and practical component, students should aim to link the theory presented in lectures with the practical sessions and field trip components. The field trips will be towards the end, by which time students will have been exposed to sufficient statistical methods, and be ready to apply it. By the end of the module, students should have a knowledge of the underlying principles of biological statistics, be able to evaluate from a theoretical stand-point and in practise, statistical results, and have a sound appreciation of the benefits and limitations of different statistical techniques and their application to field biology.

The role of this module has been to provide students with the statistical knowledge to conduct their data analysis for their research project, and to reinforce the appreciation and knowledge of statistical methods within a biological framework. It is often the case that students in the second and third years of their degree are able to execute statistical analysis via computer programmes, but lack an appreciation of what the statistical results actually mean, and the ability to correctly interpret them in the context of their research. This module is designed to address these issues through a combination of lectures on statistical topics within a biological framework, and practical tasks and exercises.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Fowler, J., Cohen, L. & Jarvis, P. (1998). Practical Statistics for Field Biology. John Wiley & Sons. Chichester, UK.

Ruxton, G. D. & Colegrave, N. (2003). Experimental Design for the Life Sciences. Oxford University Press.

1. **Learning and teaching methods**

Total contact hours: 24

Private study hours: 126

Total study hours: 150

1. **Assessment methods**
	1. Main assessment methods

*Assignment 1 Correlations (40%)*

*Assignment 2 ANOVA (40%)*

*Module Test (20%).*

13.2 Reassessment methods

Reassessment Instrument: 100% coursework.

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *9.1* | *9.2* | *9.3* | *9.4* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |
| **Lectures** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **PC practicals** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Private study** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |
| *Correlation coursework*  | **x** | **x** |  |  | **x** | **x** | **x** | **x** | **x** |
| *ANOVA coursework*  | **x** | **x** |  | **x** |  | **x** | **x** | **x** | **x** |
| *In class test*  | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

1. **Inclusive module design**

The School 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

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

The field trip component of the module includes the internationally recognised Powell-Cotton Museum where skulls collected in Africa are measured.

Many of the data examples used in the module are from overseas.

**FACULTIES SUPPORT OFFICE USE ONLY**

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

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| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 05/06/17 | Minor | January 2018 | 1 | No |
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Revised FSO Jan 2018