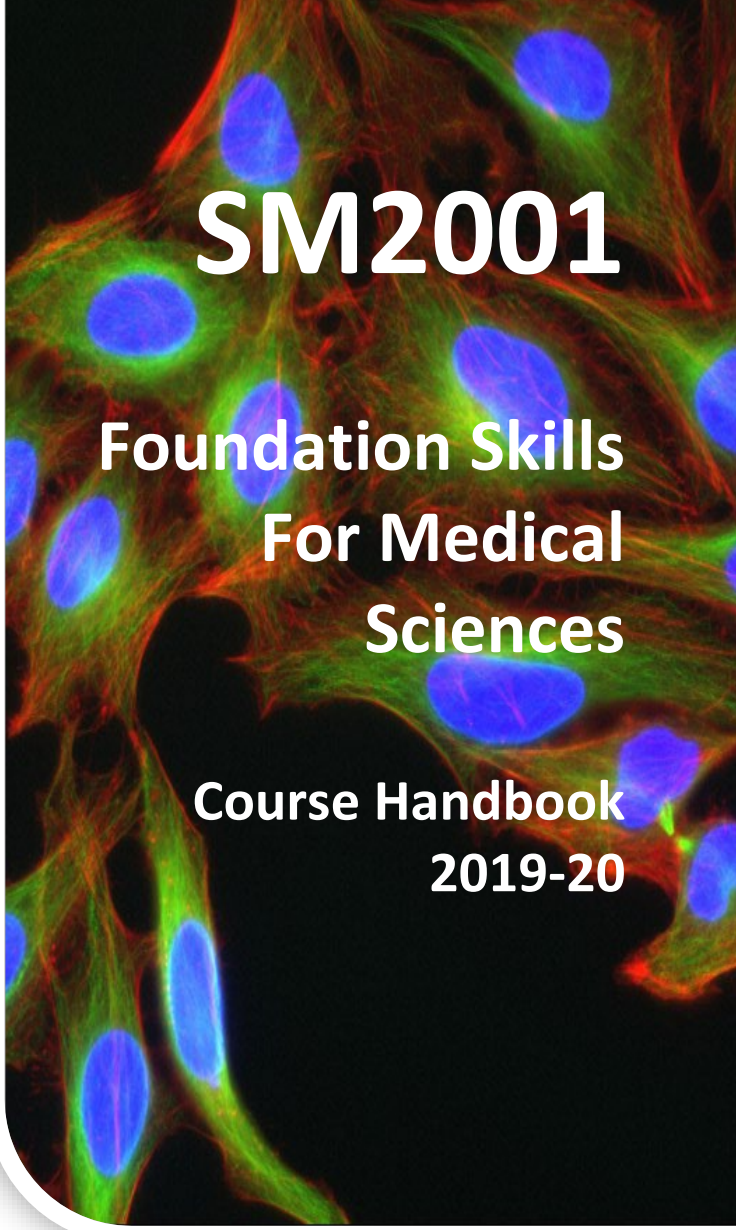
School Of Medicine, Medical Sciences & Nutrition



SM2001

Foundation Skills For Medical Sciences

Course Handbook
2019-20

UNIVERSITY OF ABERDEEN

Contents

Cover image:

Confocal micrograph of fluorescently labelled HeLa cells.

Nuclei are labelled in blue, tubulin in green and actin fibres in red.

Courtesy of:

Kevin Mackenzie
Microscopy and Histology Core Facility
Institute of Medical Sciences
University of Aberdeen
http://www.abdn.ac.uk/ims/microscopy-histology

Course Summary

This course focuses on developing core skills for medical scientists and will be required for all students with Medical Science degree intentions in the School of Medicine, Medical Sciences & Nutrition. The course consists of an Ombea (interactive) lecture starting at 9.00am in the ground floor teaching labs G9 and G11 in the Zoology Building followed by a 2 hour workshop on Wednesday mornings in University weeks 7, 9, 11, 13 and 15. There will be opportunities for any students requiring extra help to receive it at the end of each Workshop or by arrangement with the course co-ordinator. Once the Workshops are finished, computer-based homework questions will be made available via MyAberdeen to be practised through self-study each week.

On Wednesdays in weeks 8, 10, 12, 14 and 16, students will be given a specific one hour time slot between 9am and 1pm when they will be required to undertake an individual assignment under exam conditions lasting for a maximum of 50 minutes and based on the practice questions. Students must attend at the time specified.

In week 17 you will have a final assessment that will involve a practical project.

Material in the Workshops, Practice questions and Assignments have been contextualised to the major disciplines in the Medical Sciences.

Course Aims & Learning Outcomes

- To increase confidence and competence in numerical manipulations.
- To practice numerical and practical skills.
- To understand and interpret different ways of presenting scientific data.
- To understand simple statistical analysis and how to use it.
- To understand the basis of scientific investigation and the importance of hypothesis driven enquiry.
- To understand the importance of using correct scientific English.
- To design and carry out a practical project.
- To develop transferable skills related to teamwork, time management, communication and information technology skills.

Course Teaching Staff

Course Co-ordinator:

Dr Derryck Shewan ((43)7381) (**d.shewan@abdn.ac.uk**)

Other Staff:

School of Medicine, Medical Sciences & Nutrition Academic Contacts:

Prof Gordon McEwan (**g.t.a.mcewan@abdn.ac.uk**)

Dr Jiabao He (**jiabao.he@abdn.ac.uk**)

Dr Steve Tucker (**s.j.tucker@abdn.ac.uk**)

Dr John Barrow (**j.barrow@abdn.ac.uk**)

Technical/Admin Support:
Mr Nigel Graham, Zoology Building, room G10 (**n.graham@abdn.ac.uk**)

Assessments & Examinations

Students are required to attend all lectures and workshops, practice the homework questions each week and complete all in-course assessments by stated deadlines.

Assessment is derived from individual assignments (70%), group exercises undertaken during the workshops (25%) and peer assessment by group members in Week 20 (5%).

The overall performance of the student is expressed as a grade awarded on the common grading scale.

You must pass all workshops and assessments in order to pass the course and so you will be given the opportunity to repeat any that you have missed or failed. If you miss a workshop or assessment due to illness or other reasons, you must contact your course co-ordinator (Dr Derryck Shewan, **d.shewan@abdn.ac.uk**) or course administrator (Mr Nigel Graham, **n.graham@abdn.ac.uk**) immediately. It is your responsibility to be proactive in arranging to re-take missed or failed workshops or assessments. Any such repeat assessment will only be awarded a pass grade (D3 on the Common Grade Scheme), although you will be given feedback on the mark that you would have obtained, had it been your first attempt.

Class Representatives

We value students' opinions in regard to enhancing the quality of teaching and its delivery. Therefore, in conjunction with the Students' Association, we support the Class Representative system.

In the School of Medicine, Medical Sciences & Nutrition we operate a system of Class Representatives for each course. Any student registered within a course that wishes to represent a given group of students can volunteer as a Class Representative. You should give your name to the course co-ordinator (Dr Derryck Shewan, **d.shewan@abdn.ac.uk**) or course administrator (Mr Nigel Graham, **n.graham@abdn.ac.uk**) as soon as possible once the course starts.

What will it involve?
It will involve speaking to your fellow students about the course you represent. This can include any comments that they may have. You will attend a Staff-Student Liaison Committee meeting and you should represent the views and concerns of the students within this meeting. As a Class Representative you will also be able to contribute to the agenda. You will then feedback to the students after this meeting with any actions that are being taken.

Training
Training for Class Representatives will be run by the Students Association. Training will take place within each half-session. For more information about the Class Representative system visit **www.ausa.org.uk** or email the Vice President for Education and Employability

vped@abdn.ac.uk. Class Representatives are also eligible to undertake the STAR (Students Taking Active Roles) Award with further information about this co-curricular award being available at: **www.abdn.ac.uk/careers**.

Problems with Coursework

If students have difficulties with any part of the course that they cannot cope with alone they should notify the course coordinator (**d.shewan@abdn.ac.uk**) or course administrator (**n.graham@abdn.ac.uk**) immediately. If the problem relates to the subject matter general advice would be to contact the member of staff who is teaching that part of the course. Students with registered disabilities should contact Mrs Jenna Reynolds (**medsci@abdn.ac.uk**) in the School Office (based in the Polwarth Building, Foresterhill), or Mrs Sheila Jones (**s.jones@abdn.ac.uk**) in room G13 of the Zoology building, outside the ground floor teaching laboratories where the workshops take place, to ensure that the appropriate facilities have been made available. Otherwise, you are strongly encouraged to contact any of the following as you see appropriate:

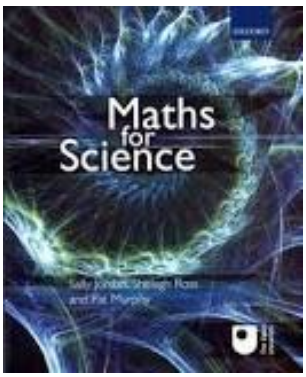
- Course Class Representatives
- Convenor of the Medical Sciences Staff/Student Liaison Committee (Professor Gordon McEwan, **g.t.a.mcewan@abdn.ac.uk**)
- Personal Tutor
- Medical Science Disabilities co-ordinator (Dr Derryck Shewan, **d.shewan@abdn.ac.uk**)

Most staff are based at Foresterhill and we strongly encourage the use of email or to telephone Jenna Reynolds in the Medical Sciences Office ((43)7471). Otherwise, you may have a wasted journey travelling to Foresterhill only to find staff unavailable.

If a course has been completed and students are no longer on campus (i.e. work from second semester during the summer vacation), coursework will be kept until the end of Welcome Week during the new academic year. After that point, unclaimed student work will be securely destroyed.

Course Reading List

There is no official course reading list, but Maths for Science complements some of the course content and is useful for further information and practice, and is held by the University Library in Old Aberdeen and the Medical School Library on the Foresterhill site. Further, contextual tuition is available through the "Interactive Support Materials" on the MyAberdeen SM2001 course site.



Maths for Science **by Sally Jordan, Shelagh Ross and Pat Murphy**.

Lecture Synopsis

Ombea and Workshop Synopses
Each workshop is preceded by an interactive Ombea lecture to set the scene. In the workshops, you will work in groups of two or three doing paper-based exercises. You will work through a set of related questions and complete an answer sheet from your group, which will be collected for marking. Marks will subsequently be shown in your personal MyAberdeen account.

Workshop 1: Introduction and Numerical Skills (University Week 7, Course Week 1)
The first workshop covers the use of numerical analysis to solve relevant problems in the wide range of disciplines that embrace the medical sciences. It focuses on the importance of units and their conversion, understanding volumes, concentrations and spatial measurements with an appreciation of scientific notation.

Workshop 2: Data Interpretation (Week 9, Course Week 3)
Workshop 2 demonstrates the range of graphs that can be used to display data, specifically scatter plots, bar charts, histograms, line charts, pie charts, box plots etc. It illustrates how trends can be identified within data by describing correlation and the use of correlation coefficients. The workshop highlights the utility of logged axes when data contain outliers or is curvilinear. The concept of variation within datasets is introduced and how this can be illustrated in graphs using error bars.

Workshop 3: Data Collection and Statistical Analysis (Week 11, Course Week 5)
This workshop provides an introductory guide to statistics and how to analyse scientific data. In this module, analysis of scientific data will be explained using introductory-level statistics. Building on an explanation of sampling and populations, the module will cover concepts such as how to express the centre point of a spread of data (measures of location: mean, median), how to express the spread of your data (standard deviation), how to calculate the confidence limits of a population, and how to carry out Student t-tests to compare two means from independent samples. The workshop will provide you with the ability to implement five useful statistical calculations and tests that you can employ to analyse a range of different biological data types, with the ability to interpret numerical and graphical statistical data.

Workshop 4: Experimental Design (Week 13, Course Week 7)
This workshop will consider the design of experimental protocols to test scientific hypotheses. It will also address the necessity of appropriate control samples in experimental design to allow for confounding and nuisance variables and of appropriate replicates in experimental design, as well as an appreciation of correct sampling effort. This workshop will cover experimental bias and how to reduce this by randomisation of treatments and pairing/matching subjects, and examine the relationship between experimental design and correct statistical analysis.

Workshop 5: Reporting Scientific Data and Problem Solving (Week 15, Course Week 9)
At the heart of science is problem solving. This workshop will involve interpreting complex data sets and working out what conclusions may be drawn from the information as it is

presented. You will also be asked to write different types of reports appropriate to different situations.

Workshop 6: Design and carry out a practical project applying the skills that you have been practising (Week 17, Course Week 11)

Practical/Lab/Tutorial Work

All problem-solving/practical work will take place during the workshops, as indicated above, in rooms G9 and G11 in the Zoology building. All individual assignments will be taken in the ground floor computing rooms (G21 and G40) in the Zoology building. Repeat workshops/assessments must be arranged as soon as possible with the course administrator, Mr Nigel Graham (**n.graham@abdn.ac.uk**), or the course co-ordinator, Dr Derryck Shewan (**d.shewan@abdn.ac.uk**).

University Policies

Students are asked to make themselves familiar with the information on key institutional policies which been made available within MyAberdeen (**https://abdn.blackboard.com/bbcswebdav/institution/Policies**). These policies are relevant to all students and will be useful to you throughout your studies. They contain important information and address issues such as what to do if you are absent, how to raise an appeal or a complaint and indicate how seriously the University takes your feedback.

These institutional policies should be read in conjunction with this programme and/or course handbook, in which School and College specific policies are detailed. Further information can be found on the **University's Infohub webpage** or by visiting the Infohub.

The information included in the institutional area for 2019/20 includes the following:

- Absence
- Appeals & Complaints
- Student Discipline
- Class Certificates
- MyAberdeen
- Originality Checking
- Feedback
- Communication
- Graduate Attributes
- The Co-Curriculum

Medical Sciences Common Grading Scale

Grade	Grade Point	Category	Honours Class	Description
A1	22	Excellent	First	• Outstanding ability and critical thought • Evidence of extensive reading • Superior understanding • The best performance that can be expected from a student at this level
A2	21			
A3	20			
A4	19			
A5	18			
B1	17	Very Good	Upper Second	• Able to argue logically and organise answers well • Shows a thorough grasp of concepts • Good use of examples to illustrate points and justify arguments • Evidence of reading and wide appreciation of subject
B2	16			
B3	15			
C1	14	Good	Lower Second	• Repetition of lecture notes without evidence of further appreciation of subject • Lacking illustrative examples and originality • Basic level of understanding
C2	13			
C3	12			
D1	11	Pass	Third	• Limited ability to argue logically and organise answers • Failure to develop or illustrate points • The minimum level of performance required for a student to be awarded a pass
D2	10			
D3	9			
E1	8	Fail	Fail	• Weak presentation • Tendency to irrelevance • Some attempt at an answer but seriously lacking in content and/or ability to organise thoughts
E2	7			
E3	6			
F1	5	Clear Fail	Not used for Honours	• Contains major errors or misconceptions • Poor presentation
F2	4			
F3	3			
G1	2	Clear Fail/ Abysmal	-	• Token or no submission
G2	1			
G3	0			

Course Timetable SM2001: 2019-2020

Date	Time	Place	Subject	Session	Staff
Week 7					
Mon 9 Sep					
Tue 10 Sep					
Wed 11 Sep	09:00-12:00	ZG9, ZG11	Ombea Workshop on Numerical Skills	Workshop	DS / ST
Thu 12 Sep					
Fri 13 Sep					
Week 8					
Mon 16 Sep					
Tue 17 Sep					
Wed 18 Sep	09:00-13:00	ZG21, ZG40	Assessment on Numerical Skills	Assessment	MS / DS
Thu 19 Sep					
Fri 20 Sep					
Week 9					
Mon 23 Sep					
Tue 24 Sep					
Wed 25 Sep	09:00-12:00	ZG9, ZG11	Ombea Workshop on Data Interpretation	Workshop	DS / GM
Thu 26 Sep					
Fri 27 Sep					
Week 10					
Mon 30 Sep					
Tue 1 Oct					
Wed 2 Oct	09:00-13:00	ZG21, ZG40	Assessment on Data Interpretation	Assessment	DS / MS/ AR
Thu 3 Oct					
Fri 4 Oct					
Week 11					
Mon 7 Oct					
Tue 8 Oct					
Wed 9 Oct	09:00-12:00	ZG9, ZG11	Ombea Workshop on Data Collection and Statistical Analysis	Workshop	DS / LE
Thu 10 Oct					
Fri 11 Oct					
Week 12					
Mon 14 Oct					
Tue 15 Oct					
Wed 16 Oct	09:00-13:00	ZG21, ZG40	Assessment on Data Collection and Statistics	Assessment	MS / DS
Thu 17 Oct					
Fri 18 Oct					
Week 13					
Mon 21 Oct					
Tue 22 Oct					
Wed 23 Oct	09:00-12:00	ZG9, ZG11	Ombea Workshop on Experimental Design	Workshop	DS / GM
Thu 24 Oct					
Fri 25 Oct					
Week 14					

Mon 28 Oct					
Tue 29 Oct					
Wed 30 Oct	09:00-13:00	ZG21, ZG40	Assessment on Experimental Design	Assessment	MS / DS
Thu 31 Oct					
Fri 1 Nov					
Week 15					
Mon 4 Nov					
Tue 5 Nov					
Wed 6 Nov	09:00-12:00	ZG9, ZG11	Ombea Workshop on Reporting Scientific Data and Problem Solving	Workshop	DS / GM
Thu 7 Nov					
Fri 8 Nov					
Week 16					
Mon 11 Nov					
Tue 12 Nov					
Wed 13 Nov	09:00-13:00	ZG21, ZG40	Assessment on Reporting Scientific Data and Problem Solving	Assessment	MS / DS
Thu 14 Nov					
Fri 15 Nov					
Week 17					
Mon 18 Nov					
Tue 19 Nov					
Wed 20 Nov	09:00-13:00	ZG9, ZG11	Practical Project	Practical	GM / JB
Thu 21 Nov					
Fri 22 Nov	09:00-17:00	ZG21, ZG40	Resit Assessments	Assessment	NG / DS

Staff

Dr Derryck Shewan (Course Co-ordinator) (DS)
Dr Steve Tucker (ST)
Dr Michael Scholz (MS)
Prof Gordon McEwan (GM)
Dr Ann Rajnicek (AR)
Prof Lynda Erskine (LE)
Dr John Barrow (JB)
Mr Nigel Graham (NG)