

Title: Rural Health (Gregynog) 2014

Supervisor: Dr M W Green

Co-ordinator: Mrs Ann Whale annw@rural-health.ac.uk

Aims and objectives:

To introduce the students to the challenges and solutions of delivery of high quality health care in rural Wales. We will consider socioeconomic factors through to delivery of immediate care to the seriously injured at the roadside. There will be a series of presentations including:-

- Emergency care distant from major hospitals including BASICS schemes.
- GP specialism including ethics, diabetes and substance abuse.
- A consideration of diseases peculiar to the countryside
- Visit to a rural community hospital.
- An international dimension
- Outdoor activities

Method of Study:

A 2 day residential course at Gregynog Hall in Powys departing Cardiff Friday (date TBC) returning Sunday (date TBC). Travel, food and accommodation free.

Assessment:

Write a reflective account about one event from the weekend (e.g. one of the talks or the visit to the hospital). Say why you chose this event and what you find interesting about it. Relate this and other events from the weekend with any ideas you have about your future as a doctor (e.g. If you found a talk about immediate care interesting say what it was you found interesting, would you like to be involved in that sort of care? Did people talk about aspects of their work you wouldn't want to do? Does the idea of living in the country appeal to you?). You can include illustrations (e.g. photos, if you took any) and complement your essay with information from relevant reliable resources relating to Rural Health Care if you wish to do so. You may also wish to consider issues such as transport (emergency transport; getting to the pharmacy to collect medications) and communications (e.g. internet access) in Rural areas. The suggested word limit for your write-up is 1,500.

Title: Induced pluripotency (iPS) cells in disease modelling and regenerative medicine

Supervisor: Dr Nick Allen
4.14
BIOSI3 (LIFE)
Tel 029 2087 6196

Email: allennd@cf.ac.uk

Aims and objectives

Cellular reprogramming to derive pluripotent cell lines that exhibit all the properties of embryonic stem cells from adult donor cells (typically fibroblasts from a skin biopsy) represents a landmark technology in stem cell biology. When coupled with in vitro methods to differentiate pluripotent cells to specific cell types this ability to derive iPS cell lines directly from patients opens up unprecedented opportunities for in vitro disease modelling using human cells. In addition the technology provides a potential route to the generation of specified cell types or tissues for autologous cell therapies or tissue engineering.

The aim of the project is to provide an opportunity to:
understand the meaning of 'pluripotency' and the basis for reprogramming technology
review the implications of iPS technology for both research and therapeutics
prepare a report that examines the application of iPS technology to a chosen disease or class of diseases.

Method of study:

Assessment:

There will be a written report (suggested word limit of 1500). The final mark is based on knowledge & understanding of the submitted work.

Title: Sudden cardiac death (SCD) in the young adult

Supervisor: Dr TJ Allen, BIOSI2

Email address: AllenTJ@cardiff.ac.uk

Aims:

To investigate evidence that SCD is linked to cardiac arrhythmias. To explore the ionic basis of arrhythmias. To explore the epidemiology of arrhythmias in the UK, Europe, worldwide.

Method of study:

Self directed learning, with support and advice. Students are encouraged to develop a cross-discipline approach to this project. This is a library-based project, involving literature search, and analysis of published information.

Assessment:

There will be a written report (suggested maximum of 1500 words) following attendance, participation at group sessions and literature search. A final 10 min presentation will be given by each student.

Title: It doesn't just gurgle when I'm hungry: nerve, muscle and gastrointestinal movements

Supervisor: Dr TJ Allen, BIOSI2

Email address: AllenTJ@cardiff.ac.uk

Aims:

To investigate the roles played by nerve and muscle in the different forms of motility found throughout the gastrointestinal (GI) tract.

Objectives:

To examine the organisation of reflexes which effect forms of co-ordinated GI motility.

To understand how different nerves and transmitters exert control of GI motility.

To appreciate how different muscle types function to play a part in GI motility.

To choose and then examine mechanisms for changes in GI motility during a disorder or disease.

Method of study:

Self directed learning, with support and advice. Students are encouraged to develop a cross-discipline approach to this project. This is a library-based project, involving literature search, and analysis of published information.

Assessment:

There will be a written report (suggested maximum of 1500 words) following attendance, participation at group sessions and literature search. A final 10 min presentation will be given by each student.

Title: About last night: the cost of a heavy weekend

Supervisor: Dr Matt baker
C1.19
BIOSI

Email: Bakermd@cardiff.ac.uk

Aims & objectives:

The Hangover: familiar and unwelcome friend for many a first year student, but what causes it? Just what goes on when you over-indulge on a Friday night and what fuels the need for that late night trip to McDonalds after one too many?

This project will explore how alcohol is metabolised and just what it does to the rest of your metabolic pathways that cause some of the well-known side effects.

Method of Study:

Self directed study following an introductory tutorial and additional literature-based tutorial/workshop. Further support is provided as required.

Assessment:

Each student will produce a PowerPoint presentation and submit written notes (suggested word limit = 1500).

Title: RNA metabolism in neurodegeneration – the weakest link?

Supervisor: Prof. Vladimir Buchman
Room 4.15
BIOSI3
Tel: 029 2087 9068

Email address: buchmanvl@cf.ac.uk

Aims & objectives:

Recent studies of patients with familial amyotrophic lateral sclerosis and/or fronto-temporal dementia revealed that certain hereditary forms of these diseases could be caused by mutations in either *TDP-43* or *FUS* genes. These genes code for proteins that play important roles in the intracellular RNA metabolism. Moreover, accumulation of aggregated forms of these proteins was observed in pathological inclusions characteristic to idiopathic forms of these diseases. Several hypotheses have been put forward to explain why compromised RNA processing or compartmentalisation lead to neurodegeneration and why certain neuronal populations are most vulnerable to these changes.

The aim of this project is to search for information and write an essay about the role of modified intracellular RNA metabolism and protein factors that regulate this process in the development of certain neurodegenerative diseases.

Method of study:

Self directed learning with support and advice as required. This is a library-based project involving research of the literature, and assimilation and critical analysis of published data.

Assessment:

A written report (suggested maximum of 1500 words) presenting the information gathered and conclusions. The grading will be based on the knowledge of the topic including the breadth of sources of information (40%), understanding of the topic and critical appreciation (40%), skills in the presentation of the report (20%).

Title: Sexual Differentiation of the Brain.

Supervisor: Professor David Carter
School of Biosciences
Cardiff University
Email: smbdac@cardiff.ac.uk

Aims and objectives:

Susceptibility to disease is sex-dependent and this relationship extends to neuropsychiatric and neurodegenerative diseases. In the 21st Century our appreciation of the basic science of sexual differentiation of the brain has broadened and matured, potentially providing for a better understanding of the mechanisms involved in disease susceptibility. To what extent do we understand these mechanisms?

Method of study:

Self-directed learning following an introductory seminar, plus further support and advice as required. This is a literature-based project involving Database searches and critical analysis of published material, but there is also scope for the incorporation of novel ideas.

Assessment:

Written report (suggested length: 1200-1500 words). The supervisor will provide guidance. Assessment is based on based on content, understanding and presentation.

Title: In search of a cure for triple negative breast cancer

Supervisor: Dr Richard Clarkson
Room 5.02
BIOSI3

Email: clarksonr@cf.ac.uk

Aims and objectives:

There has been significant improvement in survival rates for patients with breast cancer over the past 20 years. This is due to advances in surgical procedures and the introduction of new adjuvant therapies targeting key hormonal / growth factor pathways instrumental in the aetiology of the disease. However up to a quarter of all breast cancers are independent of these pathways, and are therefore resistant to these new therapeutic agents. Furthermore, a large proportion of tumours that initially respond to these drugs subsequently acquire the resistance phenotype. These so called 'triple negative' breast cancers are a clinically important subset of the breast cancer population and great effort is now being directed towards identifying new strategies to tackle these unresponsive tumours.

The aim of this project is to:

- 1) Choose an appropriate example of a strategy currently being employed to target triple negative breast cancers
- 2) Review the rationale behind the therapeutic strategy
- 3) To describe how it may be applied to the clinic

Method of study:

Self directed learning with support and advice as required. This is a library-based project involving research of the literature, and assimilation and critical analysis of published data.

Assessment:

A written report (suggested maximum of 1500 words) presenting the information gathered and conclusions.

Title: Diabetes mellitus – how much do you know?

Supervisor: Dr Christian Cobbold

C1.33

BIOSI2

Tel: (029 208) 79159

Email: cobboldcj@cardiff.ac.uk

Aims and objectives:

Students will review the aetiology and effects of gestational, type 1 and type 2 diabetes mellitus (DM) on human metabolism and physiology. Traditionally type 2 DM is seen as a 'mature-onset' condition, it is now being seen in adolescents as well, whilst type 1 is primarily seen in the under 20s. An important part of the study will be to consider why this is so, and to discuss the implications. Subject to OH&S approval students will be able to perform an oral glucose tolerance test, and thus determine their own diabetic status. Impact of different diets on DM may also be covered.

Method of study:

Self directed learning following an introductory discussion, plus further support and advice as required. This is a library-based project involving a literature search.

Assessment: to be confirmed.

Title: What's an inherited metabolic disease?

Supervisor: Dr Duncan Cole
Dept Medical Biochemistry
UHW

E-mail: ColeDS1@cardiff.ac.uk

Aims and objectives:

Inherited metabolic diseases (IMDs) are rare and often clinically complex. Patients and their families have usually never heard of the condition when it is diagnosed, and most health professionals have usually only read about them in textbooks. In this SSC you will select one inherited metabolic disease and research its pathophysiology, the problems patients with the IMD experience, and the treatment options available. You will then present your findings in a way that patients and non-specialist health professionals would understand. The learning outcomes are therefore that you will be able to:

- Discuss the pathophysiological basis and clinical problems encountered in a chosen IMD.
- Communicate effectively on the issues that patients and the medical community face when dealing with an IMD.

Method of study:

Self-directed learning, following an introductory tutorial with the supervisor. Students will also have an opportunity to discuss their chosen disorder with the metabolic clinical team and affected patients and their families. The project will involve searching and reviewing the scientific literature and information provided by patient support groups.

Assessment:

Production of a short patient information leaflet for their chosen IMD (maximum 2 sides of A4) (suggested word limit of 1500).

Number of students: maximum of 2

Title: What's the use of biochemical tests?

Supervisor: Dr Duncan Cole
Dept Medical Biochemistry
UHW

E-mail: ColeDS1@cardiff.ac.uk

Aims and objectives:

Around 6 million tests are run in the Department of Medical Biochemistry and Immunology in Cardiff and Vale every year. But why are they requested and what use are they in patient care? During this SSC you will have the opportunity to review one or more biochemical tests in detail, determining the indications for testing and reviewing how the results should be interpreted and used clinically.

Learning outcomes: At the end of the SSC you will be able to

- Describe the clinical utility of your chosen biochemical test
- Evaluate the evidence base for the use of your chosen biochemical test

Method of study:

Self-directed learning, following an introductory tutorial with the supervisor. Students will also have an opportunity to discuss their chosen test with scientific and medical staff in the biochemistry laboratory. The project will involve searching and reviewing the scientific literature on the use of a biochemical test.

Assessment:

Production of a short evidence-based guide on the use of your chosen biochemical test (maximum 1500 words).

Students: maximum of 2

Title: **Neuromuscular disorders**

Supervisor: Dr. Sheila Amici-Dargan
 C1.22
 BIOSI2
 029 20 870825

Email address: DarganSL@cf.ac.uk

Aim: The aim of this project is to investigate a neuromuscular disorder of your choice.

Method of Study: You will conduct self-directed learning on neuromuscular disorder of your choice. A few weeks into the project you will give a brief presentation (10 mins) to the rest of your SSC group (approx 6 students) explaining the pathophysiological mechanisms underlying your chosen disorder, common symptoms, diagnostic methods and treatment strategies. After this presentation you will be given feedback on the work you have done so far and will be expected to conduct further research into your chosen condition looking at recent original research papers. This project will introduce you to evidence based medicine and help you to develop skills in critical evaluation.

Assessment: Presentation and a final written report (suggested maximum of 1500 words)

Title: **Cardiovascular disorders**

Supervisor: Dr. Sheila Amici-Dargan
 C1.22
 BIOSI2
 029 20 870825

Email address: **DarganSL@cf.ac.uk**

Aim: The aim of this project is to investigate a cardiovascular disorder of your choice.

Method of Study: You will conduct self-directed learning on cardiovascular disorder of your choice. A few weeks into the project you will give a brief presentation (10 mins) to the rest of your SSC group (approx 6 students) explaining the pathophysiological mechanisms underlying your chosen disorder, common symptoms, diagnostic methods and treatment strategies. After this presentation you will be given feedback on the work you have done so far and will be expected to conduct further research into your chosen condition looking at recent original research papers. This project will introduce you to evidence based medicine and help you to develop skills in critical evaluation.

Assessment: Presentation and a final written report (suggested maximum of 1500 words)

Title: Transoesophageal echocardiography (TOE)

Supervisor: Dr. John Dunne
Consultant Cardiothoracic Anaesthetist
Anaesthetic Department
University Hospital of Wales

Tel: 029-20744348

Email address: John.Dunne@CardiffandVale.wales.nhs.uk

Background

Transoesophageal echocardiography (TOE) is a technique that has rapidly become an integral part in the management of the cardiac surgical patient. Its use as a diagnostic tool and monitor technique extends from the preoperative to the postoperative period. TOE whilst originally the tool of the cardiologist has now become an important part of the armamentarium available to the cardiac anaesthetist.

Aims & objectives:

The purpose of this project is to:

- (a) Review **very simple** the physics and principles of 2D imaging and Doppler modalities.
- (b) Review the anatomy and physiology provided in real time by TOE
- (c) Discuss the limitations of transoesophageal echocardiography
- (d) Consider the situations where transoesophageal echocardiography are used

Method of study:

Self directed learning with support and advice as required. This is a clinical based project involving literature search, and assimilation and analysis of information gathered from clinical areas as well as published data.

Assessment:

A written report (suggested maximum of 1500 words) presenting the information gathered and conclusions. The grading will be based on the knowledge of the topic including the breadth of sources of information, understanding of the topic and critical appreciation, skills in the presentation of the report.

Title: An essay on influenza

Supervisor: Professor Ron Eccles
Common Cold Centre
Cardiff School of Biosciences

Email eccles@cardiff.ac.uk

Aims and objectives

The influenza virus causes epidemics and pandemics. Students are asked to write an essay exploring one or more aspects of influenza such as; virology, molecular biology, pathology, epidemiology, natural history, treatment, economic impact, misconceptions etc. Students should select some aspect of the topic that has interested them and they are not expected to cover all aspects of information on influenza.

Method of study:

Self directed learning with support and advice as required.

Assessment:

Students should prepare a written essay (suggested maximum of 1500 words plus any diagrams) on the subject area they have selected. The essay will contribute 100% of the mark and students should aim to provide an essay that explores their chosen area of influenza and that is not merely a cut and paste of material obtained from the web, media or textbooks. Students are not expected to cover all aspects of influenza. The highest marks will be obtained when there is evidence of independent research and creativity. The essay should be easily understood and interesting to the non-specialist. The essay should be considered as an exercise in communicating some aspect of influenza that has interested the student.

Maximum number of students: 10

Title: What are the genetic factors that may predispose to amyotrophic lateral sclerosis? Conversely, what non-genetic factors may reduce risk?

Supervisor: Dr. George Foster
Biosciences
Tel: 029 2087 4101

E-mail address: FosterGA@cardiff

Aims & objectives:

This SSC provides an opportunity for the student to carry out an open-ended literature search into the epidemiology of amyotrophic lateral sclerosis. It should promote the use of all sources of information in the gathering of evidence and the critical presentation as a report.

Method of Study:

Students will be given a tutorial to describe the field of study and how they might conduct literature searches efficiently and economically. Students will be encouraged to contact clinical colleagues to obtain first-hand information concerning the life-styles of patients with ALS. Following the introduction the project will be by self-directed learning, plus further support and advice as required. This is a library-based project involving literature search, and assimilation and analysis of published data.

Assessment:

A written report (suggested maximum of 1500 words) summarising conclusions and including data, and discussion with supervisor. Based on knowledge, understanding and presentation.

SSC title: Paroxysmal Supraventricular Tachycardia - a guide for patients

Supervisor: Dr Sarah K. Hall
BIOSI 2

e-mail: HallSK@cf.ac.uk

AIMS AND OBJECTIVES:

Area: Physiology, Pharmacology, Cardiology

This SSC will allow students to extend their knowledge of the cardiovascular system and to investigate pathophysiological events which can affect cardiac function. They will focus on the causes and consequences of paroxysmal supraventricular tachycardia (PSVT), as well as the therapeutic principles underpinning the treatment of PSVT and the pharmacological and other approaches currently in use. Students will then distill this knowledge to produce a concise information pack for individuals experiencing PSVT.

METHOD OF STUDY:

This is a library-based project. Students will be introduced to the scope of the project at an introductory meeting. They will be given key references that will allow them to build up a bibliography of relevant literature concerning the cellular and systemic basis of PSVT, and the therapeutic approaches to its treatment. The inquiry element of this project will principally take the form of a literature search, but could be supplemented by discussion with clinicians.

Max no. of students: 6

ASSESSMENT:

Each student will produce a concise information pack for patients and their families (not more than 6 sides of A4 or equivalent). This will be marked according to criteria which will be given to students at the introductory meeting.

Title: The Ketogenic diet in health and disease

Supervisor: Dr Tim Higgins
C1.25
Biosi 2

E-mail: Higginstp1@cf.ac.uk

Aims and objectives:

In the normal mixed diet glucose is virtually the sole metabolic substrate for the brain and is used both as an energy source and a precursor for macromolecules and other metabolic intermediates. Under starvation conditions or the ketogenic diet the body's reliance on glucose is diminished indeed up to 70% of the brain's energy demand can be provided by ketone bodies. The aim of this SSM is to discuss how integrative metabolism changes under ketogenic conditions, and discuss the consequences of such diets to health and disease.

Method of study:

Introductory session, followed by a library-based research project on how ketogenic diets affect integrative metabolism and the consequence of altered metabolism on health and disease.

Assessment:

Essay (suggested maximum 2000 words) reviewing current literature and opinion

Title: **New horizons in osteoarthritis**

Supervisor: Dr Clare Hughes
 Connective Tissue Biology
 E4.07
 BIOSI 2
 Tel 029 20876417

e-mail address: hughesce1@cardiff.ac.uk

Aims and Objectives:

This SSC is designed to familiarise the student with the following themes associated with the study of osteoarthritis; Risk factors, Genetic predisposition, Biomechanical reactivity, cytokines, growth factors and metalloproteinases, Adipokines, subchondral bone, biomarkers, phenotyping OA and future therapeutic strategies. These themes were recently reviewed by Oliviero et al in Swiss Med Wkly 2010 Sep 17;140:w13098. The students should select one of the topics and explore the primary literature in the area to produce a detailed critical analysis of a selected number of papers that highlight important areas of research.

Method of Study:

Self directed learning following an introductory discussion. Further support and advice will be given as required. This is a library-based project requiring a literature search within a defined field.

Assessment:

A written report (suggested maximum of 2500 words) summarising the information found. Marking will be based on knowledge, understanding and presentation.

Title: From chronic illnesses to dementia; the role of protein misfolding as an underlying molecular cause of different disease states.

Supervisor: Dr Dafydd Jones.
Room Main 1.69.

Email: jonesdd@cf.ac.uk

Aims and objectives:

The 3D molecular structure of a protein defines its functions. The nascent polypeptide freshly synthesised by the ribosome needs to undergo molecular origami to fold to its correct, functional form. If this protein folding process goes wrong then there are two potential outcomes. The first is the loss of function of that individual protein. If the protein performs a critical role in the organism, loss of function can have a detrimental effect (e.g. cystic fibrosis). The second is gain of toxic activity. The misfolded form of the protein can itself be associated with instigating the disease state (e.g. Creutzfeldt-Jakob disease). Therefore, understanding how proteins fold and misfold at the molecular level is critical for understanding the basis (and thus potential therapy development) of various diseases.

The first part of this project is to provide an overview of how and why proteins misfold to alternative non-native 3D structures (correct folding *versus* misfolding). The second part of the project is to describe how a protein misfolding event leads to a disease state by (i) loss of a critical protein function and (ii) toxic gain of function.

Method of study

Self-directed learning following an introductory discussion session and support and advice as required. This is a library-based project involving a literature search.

Assessment

A report (suggested maximum 1500 words) on the topic. Knowledge and analysis of the topic (80%). Presentation and organisation of the information (20%)

Title: Medicinal Plants

Supervisor: Dr Hefin Jones
Room C/6.16

e-mail: jonesth@cardiff.ac.uk

Aims and Objectives:

To assess the potential medical properties of a named plant

Method of Study:

Self-directed Learning after an Introductory Session.

At the first tutorial a general discussion of the use of medicinal plants; conventional versus alternative medical treatments; and how medicinal plants are perceived. In the following 1-2 weeks the Student will select a specific plant species for detailed research and study, providing the Supervisor with a short (maximum words: 250) summary of the direction the project is likely to take. As well as the medicinal properties of the plant itself, the Student will, using the literature, assess and compare 'plant treatment' results with conventional medical treatment. Over the study period the Student will then write an essay summarising, synthesising and discussing their research findings. At the final tutorial the Student will also present a short oral presentation (with PowerPoint) of their findings.

Assessment:

An essay (suggested maximum 1500 words), which will be marked on knowledge of the topic, good use of sources, critical analysis of the story, and organisation of the material.

Blwyddyn 1 Meddygaeth Prosiect SSC

Teitl: Planhigion Llesol

Arolygwr: Dr Hefin Jones, BIOSI

Cyswllt: Ystafell C/6.16 e-bost jonesth@caerdydd.ac.uk

Nod ac Amcanion:

Asesu gwerth potensial planhigion fel adnodd meddygol

Dull Astudio:

Dysgu wedi'i hunangyfeirio yn dilyn Sesiwn Gyflwyno.

Yn y Sesiwn Gyflwyno ceir trafodaeth gyffredinol ar blanhigion llesol, pa ddefnydd a wneir ohonynt gan feddygaeth gonfensiynol, sut mae'r canlyniadau yn cymharu â beth yw agwedd meddygon tuag at driniaethau amgen o'r fath. Yn yr 1-2 wythnos ddilynol bydd y Myfyriwr yn dewis planhigyn arbennig i'w ymchwilio a'i astudio'n fanwl, gan gyflwyno crynodeb byr (dim mwy na 250 o eiriau) i'r Arolygwr o gyfeiriad y prosiect dros yr wythnosau dilynol. Dylai'r prosiect, os oes data wedi'u gyhoeddi, gymharu canlyniadau defnyddio'r planhigyn fel triniaeth o'i gymharu â thriniaethau arferol. Dros y cyfnod astudio bydd y Myfyriwr yn ysgrifennu traethawd yn crynhoi, syntheseiddio a thrafod canlyniadau ei ymdrechion ymchwil. Yn y tiwtorial olaf disgwylir i'r Myfyriwr wneud cyflwyniad llafar byr (gan ddefnyddio PowerPoint).

Asesiad:

Traethawd (dim mwy na 1500 o eiriau); asesir deall o'r pwnc, y defnydd o ffynonellau, dadansoddiad beirniadol, a threfniant y deunydd.

Title: **Climate Change and Disease**

Supervisor: *Dr Hefin Jones*

Room C/6.16
Biosci

e-mail: *jonesth@cardiff.ac.uk*

Aims and Objectives:

To assess the impact of climate change on a named disease.

Method of Study:

Self-directed Learning after an Introductory Session.

At the first tutorial a general discussion of how climate change may impact disease (prevalence, epidemiology, distribution etc) will be held. In the following 1-2 weeks the Student will select a specific disease, providing the Supervisor with a short (maximum words: 250) summary of the direction the project is likely to take. Over the study period the Student will then write an essay summarising, synthesising and discussing their research findings. At the final tutorial the Student will also present a short oral presentation (with PowerPoint) of their findings.

Assessment:

An essay (suggested maximum 1500 words), which will be marked on knowledge of the topic, good use of sources, critical analysis of the story, and organisation of the material.

Teitl: Newid Hinsawdd ac Afiechyd

Arolygwr: Dr Hefin Jones, BIOSI

Cyswllt: Ystafell C/6.16

e-bost: jonesth@caerdydd.ac.uk

Nod ac Amcanion:

Asesu goblygiadau newid hinsawdd ar afiechydon

Dull Astudio:

Dysgu wedi'i hunangyfeirio yn dilyn Sesiwn Gyflwyno.

Yn y Sesiwn Gyflwyno ceir trafodaeth gyffredinol ar effeithiau newid hinsawdd ar afiechydon a heintiau (gan gynnwys eu mynychder, epidemioleg a'u dosraniad). Yn yr 1-2 wythnos ddilynol bydd y Myfyriwr yn dewis haint (afiechyd) benodol i'w ymchwilio a'i astudio'n fanwl yng nghyd-destun newid hinsawdd, gan gyflwyno crynodeb byr (dim mwy na 250 o eiriau) i'r Arolygwr o gyfeiriad y prosiect dros yr wythnosau dilynol. Dros y cyfnod astudio bydd y Myfyriwr yn ysgrifennu traethawd yn crynhoi, syntheseiddio a thrafod canlyniadau ei ymdrechion ymchwil. Yn y tiwtorial olaf disgwylir i'r Myfyriwr wneud cyflwyniad llafar byr (gan ddefnyddio PowerPoint).

Asesiad:

Traethawd (dim mwy na 1500 o eiriau); asesir deall o'r pwnc, y defnydd o ffynonellau, dadansoddiad beirniadol, a threfniant y deunydd.

Title: EGFR inhibitors in the treatment of cancer

Supervisor: Dr. Helen Jones
BIOSI 2
C1.22
Tel: 029 20874771

Email: joneshe1@cardiff.ac.uk

Background

Signalling through the epidermal growth factor receptor (EGFR) plays a major role in the normal growth and differentiation of cells of epithelial origin. Dysregulated EGFR signalling however, has been linked with the development and progression of many solid tumour types including lung, colorectal, head & neck, breast and prostate cancer. Moreover, over-expression and aberrant activation of the EGFR is associated with advanced disease and resistance to treatment with chemotherapeutic agents. As such, the EGFR represents an important anti-cancer target and numerous strategies have been developed to inhibit signalling via this receptor.

Aims and Objectives

The aim of this project is to understand the rationale of the development and use of anti-EGFR inhibitors in the treatment of cancer. You will need to cover the following points:

- Explain the structure and mechanism of signalling of the EGFR
- Detail the main strategies employed to block EGFR signalling i.e. monoclonal antibodies and small molecule inhibitors and describe their mechanism of action
- Indicate the successes (and failures?) of the use of anti-EGFR inhibitors in the treatment of cancer

Method of study

Self-directed learning following an introductory tutorial with further support and advice as required.

Maximum number of students: 6

Assessment

A written report (suggested word limit 1500) which will be evaluated based on knowledge, understanding, and presentation.

Title: Chromatin and cancer

Supervisor: Dr. Nicholas Kent
BIOSI2 - E3.20
Tel: 02920 879036

Email address: kentn@cardiff.ac.uk

Aims & objectives:

Chromatin is the dynamic complex of DNA and proteins from which all chromosomes are built. All the biochemical functions of DNA take place using chromatin as a substrate, and chromatin-remodelling enzymes are key factors controlling gene regulation, cell division and DNA repair. Defects in chromatin remodelling are emerging as major causal factors in the initiation and progression of many diseases including a variety of cancers.

The aim of this project will be to:

- (a) gain knowledge about the general processes of chromatin-remodelling;
- (b) select an example of a genetic defect in a chromatin-remodelling system which predisposes cells to become tumorigenic;
- (c) investigate emerging or theoretical therapeutic strategies for that pathology;
- (d) prepare a report on the above.

Method of study:

Self-directed study with support and advice as required via one-to-one tutorials. This library-based project will involve literature searching and critical analysis of the published data.

Assessment:

A written report (suggested maximum length: 1500 words) presenting the information gathered and conclusions. Grading will be based on the Project Marking Criteria described in the SSC handbook.

SSC Title: Gene therapy for rheumatoid arthritis – a new cure?

Supervisor: Dr A Kwan
Rm C/4.08
Tel: 02920 874 654

email: kwanap@cardiff.ac.uk

Aims & objectives

This SSC aims to encourage students to appreciate

- (i) The structure and function of articular cartilage;
- (ii) The etiology and pathology of rheumatoid arthritis;
- (iii) The socio-economical impact of arthritis in the UK and the rest of the world;
- (iv) The current clinical strategies in combating rheumatoid arthritis;
- (v) That recent scientific advancements in gene therapy may offer a new and effective therapeutic solution.

Methods of study

Self-directed learning following an introductory tutorial, plus further support and advice as required. This is essentially a library-based project involving literature search. Students will be expected to undertake a substantial literature survey on the subject. This project may also involve analyses of some prepared experimental data.

Assessment

A written report (suggested maximum of 1500 words) summarising conclusions, and discussion with supervisor. Marking will be based on knowledge, understanding, and presentation.

Title: Approaches for regenerative medicine

Supervisor: Dr. Branko Latinkic
W3.24
Biosci 2
Tel: 20875784

Email: latinkicb@cf.ac.uk

Aims & objectives:

One of the goals of medicine is to heal the patients suffering from various forms of organ or tissue failure, by providing them with replacement organs or tissues. The main approach for organ or tissue replacement is transplantation, which has serious limitations, including donor organ availability and rejection of the donor organ by the host's immune system. Other possibilities for tissue replacement that are subject of intense research activity include regeneration and stem cell-based strategies.

This project provides an opportunity:

1. to choose an example of tissue replacement strategy from the following choices: regeneration, adult stem cells, embryonic stem cells or iPS stem cells,
2. to examine the current literature and evaluate the prospects,
3. to prepare a written report.

Method of study:

This is a literature review (library) – based project, involving critical analysis of research publications. After the initial meeting, support will be provided as required.

Assessment:

There will be a written report (suggested maximum 1500 words) on the results of literature analysis. The final mark will be based on knowledge, understanding and presentation of the topic.

Title: Is the Public Water Supply Really Safe to Drink?

Supervisor: Professor I P Matthews
Department of Primary Care & Public Health
4th Floor, Neuadd Meirionnydd, Cardiff University,
Heath Park, Cardiff

Tel: 029 20687246

E-mail address: MatthewsIP@cardiff.ac.uk

Aims & objectives:

Recently in the UK widespread contamination of the water supply by cryptosporidium has indicated that water treatment methods may not be sufficient to protect the public health. Also, chemical pollution episodes by various chemicals have given rise to local problems. In developing countries waterborne disease is of major Public Health importance. This SSM will address the health hazards and associated risks from either microbiological or chemical contamination of the water supply.

Method of study:

Self directed learning followed by an introductory seminar, plus further support and advice as required. This is a library-based project involving literature search, and assimilation and analysis of published data.

Assessment:

A written report (suggested length of 1500 words) summarising conclusions, and discussion with supervisor. Based on knowledge, understanding and presentation.

SSC Title: The cyclic di-guanosine monophosphate signalling system in bacteria

Supervisor: Andy Morby
Biosciences
029 2087 4128

Email: morby@cf.ac.uk

Aims

Cyclic-di guanosine monophosphate (c-di-GMP) has been implicated in the regulation of a range of phenotypes in prokaryotes e.g. exopolysaccharide production, virulence etc. The majority of bacterial genomes harbour multiple genes that appear to encode GGDEF-domain proteins in addition to the “opposing” EAL domain proteins that have been shown to degrade c-di-GMP (phosphodiesterase (PDE) activity) indeed *Vibrio vulnificus* has up to 59 such examples. What was first identified as an allosteric regulator of cellulose synthesis is now thought to represent a key second messenger in an elaborate and universal bacterial post-translational regulation system (Reviewed in Jenal 2004, D’Argenio and Miller, 2004; Romling et al., 2005). The opposing cycles of c-di-GMP generation and degradation form the basis of a multi-input signal transduction system that has a global effect on bacterial behaviour, fitness and adaptation to the environment.

Method of Study

The project will be entirely computer based.

Assessment

A written report (suggested maximum of 1500 words) summarising the findings.
Knowledge, Understanding and Presentation.

SSC Title: The causes and treatment of back pain

Supervisor: Dr Jim Ralphs
C4.06
BIOSI2
029 20874954

Email: Ralphs@cf.ac.uk

Aims and Objectives

Back pain is a major problem to medicine, to the economy in terms of the millions of working days lost to it per year, and to the individual. It can range from mild discomfort and stiffness to crippling, intractable pain.

The aim of the project is:

To relate anatomy and function of the back to the generation of back pain and to identify possible treatments for pain control and/or cure.

Methods of study:

Self directed learning (library and computer based) with support and advice as required.

Assessment

Information pack for patients with back pain - causes, management, treatment. Group will work together to create an information pack, but each student will upload their own individual contribution via Turnitin.

Title: Current therapeutic approached to advanced chronic kidney disease

Supervisor: Daniela Riccardi
Professor of Physiology
Room C 3.15
The Sir Martin Evans Building
Phone: 029208-79132
Fax: 029208-74116

Email: riccardi@cf.ac.uk

Background and objectives

In an ageing population, the incidence of diabetes and hypertension, main causative factors for chronic kidney disease are on the rise. Progressive loss of renal function leads to severe morbidity and mortality, with vast expenditure by the NHS. By accessing published information in peer-reviewed Journals and literature available from the www, the student will describe current established methods of diagnosing kidney failure and will compare standard therapeutic approaches with newly available treatments.

Method of study

After an initial tutorial, self-directed learning with reference to published material and web searches. The students will be expected to use peer-reviewed information from the literature and internet.

Method of assessment

EACH student will produce a written report (suggested maximum length of 1500 words)

Title: Lysosomal Storage Diseases

Supervisor: Dr. Stephen Rutherford
C1.17
BIOSI2
Tel: 029-208-70251

Email address: RutherfordS@cf.ac.uk

Aims & objectives:

The lysosome is an essential organelle within the cell. The lysosome contains hydrolytic enzymes that are used to break down cellular components, imported molecules, cells and pathogens. As a result the lysosome plays a central role in not only the function of the cell, but the health of the organism. The internal environment of the lysosome regulates the activity of its constituent enzymes by virtue of its low pH. The components of the lysosome are directed to the organelle by a specific pathway. Once resident within the lysosome, these enzymes can help break down a large number of different molecules and structures. As a result of the lysosome's importance, the consequences of a malfunction in the lysosome are often quite severe. There are several diseases which are the result of a lack of lysosome function, known as *Lysosomal Storage Diseases* (LSDs) or *Lysosomal Storage Disorders*.

Method of Study:

Self-directed learning with support and advice as required. This is a literature-based project which should involve the use of scientific literature, reviews, and published data.

Assessment:

An essay (suggested length = 1500 words) reviewing the structure and function of the lysosome, and the basis and pathology of Lysosomal Storage Diseases. Discuss the structure of the lysosome, and how this relates to the function of the organelle. Describe the hydrolytic enzymes which are the components of the lysosome, and how these components are targeted to the organelle after synthesis within the cell. Discuss the background to LSDs and describe in detail the biochemical basis, pathology and treatment of one specific LSD.

Grading will be based on an understanding of the topic; the breadth of source material; the appropriate use of references and resources and a full discussion of the disease.

Title: Urinary incontinence - the silent geriatric epidemic

Supervisor: Dr Rob Santer
Room C5.13
BIOSI 2

Tel: 029 2087 4842

Email address: santer@cardiff.ac.uk

Aims & objectives

Urinary incontinence in the elderly is a major drain on the finances of health services worldwide, a major problem for many of those in care, in hospital and also at home. Furthermore, urinary incontinence in the elderly is a source of major embarrassment and can lead to social isolation and a reduction in the quality of life. Even knowing whether there are/are not toilets in shopping centres can determine whether an elderly person will leave home to go shopping or meet up with friends. The incidence of urinary incontinence will increase with the demographic trend of increasing lifespan in the human population. This SSC will explore the neurological, physiological and clinical aspects of this very important geriatric problem.

Methods of study

Self directed learning following an introductory session and further advice and support as required. Starter references will be provided. Information gathering via the www will be encouraged

Assessment

The objective for each half of the group will be to make a five minute presentation and for each member of the group to write an account (suggested limit 1500 words) of their contribution to the presentation.

Title: BAT is Back, Get Hot, Not Fat

Supervisor: Dr Andrew Shore
BIOSI 2
C1.22
Ext. 76609

Email: shoream2@cf.ac.uk

Aims and Objectives

During cold stress brown adipose (BAT) tissue is the most metabolically active tissue in the body. Mitochondria in BAT uncouple oxidative phosphorylation and generate large amounts of heat using lipid as the fuel source. Human neonates rely on this mechanism to maintain a stable body temperature.

In principle if we were able to stimulate this tissue excess calorific intake could be burnt and lost as heat. In humans BAT has been seen as the prerogative of neonates, being lost during development. However recent research has shown BAT depots in adult humans that appears to respond to seasonal fluctuations in temperature reigniting a longstanding debate over the potential of BAT to counter the present obesity crisis.

More than 1 in 5 of the UK population is obese (>30% in the USA) and the costs to the NHS is predicted to exceed £3bn by 2010. The current cost to the USA is estimated to be over \$100bn, more than 10% of total health care costs.

This project will examine the current and future potential of BAT to combat obesity.

Methods of Study

Self directed study following an introductory group workshop and further individual and group support as required.

Assessment

Each student will produce a written report (suggested maximum of 1500 words). There will also be a short group presentation.

Title: Was Lamarck really wrong?

Supervisor: Dr Andrew Shore
BIOSI 2
C1.22
Ext. 76609

Email: shoream2@cf.ac.uk

Aims and Objectives

Jean-Baptiste Lamarck (the father of the word 'Biology') believed that environmental pressures could cause heritable changes in an organism. Famously August Weismann began removing the tails from generations of mice and determined that this did not result in the production of offspring without tails. Lamarck's theories gradually waned in favour of a Darwinian outlook, however:

Low birth weight offspring (caused by the mother's environment) are predisposed to obesity and type II diabetes. Interestingly this predisposition is then inherited by their offspring. Does the diet of our mothers predispose our children to disease?

Remove maternal contact from young mice and they grow up to be poor mothers. Interestingly their offspring are also poor mothers even when fostered to good mothers after birth. What are the implications for society and mental health?

Conventional genetics fails to explain the results above so do we need to reinstate Lamarckism in medical genetics?

This project will review a range of epigenetic mechanisms and explore their significance to human medicine.

Methods of Study

Self directed study following an introductory group workshop and further individual and group support as required.

Assessment

Each student will produce a written report (suggested maximum of 1500 words) reviewing a range of epigenetic mechanisms. There will also be a short group presentation focussed on the significance of epigenetic mechanisms to human medicine.

Title: *Drosophila* models of neurodegenerative disorders

Supervisor: Dr Henrietta Standley
C1.34
BIOSI

tel. 029 208 76735

e-mail: standleyhj@cardiff.ac.uk

Aims and objectives:

Drosophila melanogaster is a genetically tractable model organism utilised in biological research, including research into neurological degenerative diseases. The majority of human disease-related loci have orthologues in *Drosophila*, including genes implicated in such conditions as Alzheimer's, Parkinson's and Huntington's diseases. *Drosophila* can therefore be used to study both the roles of these genes in the normal development and functioning of the nervous system, and their involvement in mechanisms of pathogenesis.

The aim of this project is to produce a report on the usefulness of *Drosophila* in biological research, with a particular focus on *Drosophila* models of degenerative diseases affecting the human nervous system.

Method of study:

An initial meeting will be arranged with the students, in which we will discuss the scope of the project. Following this introductory session the project will be self-directed, though further support and advice will be available if needed. This is a library-based project; the students will be expected to carry out literature searches in the course of gathering information.

Assessment:

Each student will produce a written report with a suggested maximum of 2000 words. The expected scope and format of the report will be discussed at the introductory meeting.

Title: Cirrhosis of liver: Aetiology, pathophysiology, clinical presentation, complications, management and prognosis.

Supervisor: Dr. Shiby Stephens
Clinical Anatomist
Room C 1.32
Biosciences 2

Email: stephenssg@cf.ac.uk

Aims and objectives:

- The students undertaking this project would be expected to appreciate the aetiology, pathophysiology and clinical presentation, and develop an understanding and the essential principles of management (mainly medical and surgical, if relevant) of this condition.

The SSC project is intended to cover the following aspects:

- **Aetiology:** study the cause of origin and risk factors.
- **Pathophysiology:** appreciation of the altered physiology and the mechanism leading to the pathology
- **Essential anatomy:** underpinning the pathophysiology and clinical presentations
- **Histology**
- **Clinical presentation and diagnosis**
- **Management:** medical and surgical (if relevant)
- **Investigations:** that are performed to diagnose and to assess the severity of the condition
- **Prognosis:** probable outcome of the disease
- **Psycho-social:** issues related to social circumstances/support, and humanitarian and psychological management of the patient and relatives

Method of study:

- Self-directed learning following an introductory tutorial, and subsequent discussions with the supervisor as and when necessary.

Each individual student will be expected to submit a report (suggested word limit 1500 words) to the supervisor.

Title: RNA-based therapies

Supervisor: Dr G. Sweeney
Room 3.16
BIOSI2

Email: SweeneyGE@cf.ac.uk

Aims and Objectives

This SSC will give the student an opportunity to investigate an important and topical subject at the interface of medicine and molecular biology.

Many diseases, whether hereditary, sporadic or infectious, could, in theory, be successfully treated using therapies that inhibit the expression of particular genes or influence the way in which their primary transcripts are spliced. For example, inhibition of expression of genes in the genome of HIV could be an effective treatment for AIDS. Similarly many genes are inappropriately expressed by cancer cells and inhibition of such genes may prove successful in cancer therapy. Genetic disorders may also, occasionally, be caused by the expression of a faulty gene and so could be treated by therapies that inhibit the gene in question. Mutations that cause genetic disorders frequently act by interfering with correct RNA splicing and therapeutic strategies that allow normal splicing to be restored would be of obvious benefit.

In recent years technologies (e.g. RNA interference, use of antisense oligonucleotides etc) have evolved that exploit novel synthetic RNAs in order to inhibit or otherwise modify the expression disease-associated genes *in vitro*. This SSC explores these technologies and analyses the rapid progress towards applying them clinically.

Method of Study:

Self-directed learning following an introductory seminar, plus further literature support and advice as required. This is a library based project involving literature search, and assimilation and analysis of published data.

Assessment:

An assessed essay (suggested word limit 1500) and a short (10 minute) presentation

Title: Insights into human disease from the model organism *Drosophila melanogaster*

Supervisor: Dr Michael Taylor,
School of Biosciences (BIOSI 2),
Room W/3.23
Tel: ext. 75881

Email: TaylorMV@cf.ac.uk

Aims and objectives:

For the last 100 years *Drosophila* has been at the forefront of advances in many aspects of genetics. Much more recently it has emerged that it is extremely useful as a model organism for the study of a wide variety of human diseases. Central to this realisation were the outputs of both the *Drosophila* and Human Genome projects. 60% of *Drosophila* genes have human counterparts. The fundamental similarity of the fly and ourselves includes the cell's basic biochemistry, but also higher order processes like development, behaviour and physiological responses to drugs.

A large majority of human "disease" genes match *Drosophila* sequences and this conservation extends the influence of *Drosophila* in human health. *Drosophila* genetics and the "humanized fly" can now be used to advance knowledge of human disease. This SSC will focus on the current status of this approach to muscle diseases, heart disease, neurodegenerative diseases and cancer. You will select specific topics from within these areas.

Method of Study:

Self-directed learning following an introductory session.

Further specific direction will be given as required.

The project is library-based involving research of published information.

You will use Internet searches to find and access appropriate literature and web sites.

Assessment:

There will be a mid-term group session in which each student will give a short oral presentation (5-10 mins). Each student will also write an essay (suggested 1500 words limit) on the use of *Drosophila* to study a chosen human disease.

SSC Title: Cognitive Enhancers. Friend or Foe?

Supervisor: Dr K. L. Thomas
Haydn Ellis Building
Tel: 02920 879043

Email: ThomasKL5@cf.ac.uk

Students will gain knowledge and an understanding of: -

- How cognitive enhancers work.
- The use of cognitive enhancing drugs in psychiatric disorders associated with memory impairments.
- The current debate about using nootropics for treating young children and adolescents with ADHD.
- The possible implications of boosting brain power of normal people for society.

Method of study.

Self-directed learning after an introductory tutorial. Skills will be gained in computer aided literate searching, extended reading of relevant literature, critical analyses of scientific reports and the production of a concise a scientific dissertation with bibliography

Assessment

A written reports (suggested maximum of 1500 words not including bibliography). Marking criteria: Knowledge, understanding and critical judgment, bibliography and presentation.

Title: Upper Limb Injuries in Musicians – the importance of vocational context

Supervisor: Dr Alan Watson
C5.12
BIOSI 2

Email: WatsonA@cardiff.ac.uk

Aims and Objectives

Health surveys of orchestral musicians have demonstrated that a remarkably large percentage of them suffer significantly for their art! Playing a musical instrument professionally may require not only the maintenance of extreme joint positions and unusual postures for prolonged periods of time, but also generally involves rapid, repetitive and sometimes forceful movements of the fingers. This predisposes the player to a range of upper limb problems. These are rarely unique to musicians, indeed you will have come across many of them in your studies of upper limb anatomy. Nevertheless, if you talk to musicians who have experienced playing-related injury, you will quickly discover that many have had great difficulty in getting satisfactory diagnosis and treatment. There are several reasons for this. One is that some doctors do not take seriously the notion that injury can arise from an activity which they consider essentially to be a leisure pursuit. They also often fail to realize that the key to satisfactory treatment is to view the condition in a vocational context. The object of this SSM is to allow you to use your knowledge of the anatomy of the upper limb to understand the origin of these injuries and the challenges faced in their management. It will also introduce you to the importance of viewing injury and illness in the context of the occupation and lifestyle of the patient.

Method of study:

Self directed learning following an introductory seminar, plus further support and advice as required. This is a library-based project which will encourage students to use different databases to find a small number of key articles on which the essay will be based.

Assessment:

This will be in the form of a written report (suggested length is 1500 words). The qualities to be assessed will be knowledge, understanding and presentation.

Title: Functional and clinical anatomy of the intervertebral, facet or sacroiliac joint

Supervisor: Dr Tracey Wilkinson
BIOSI 2
C1.26
Ext. 76156

Email: wilkinsonat@cardiff.ac.uk

Aims and Objectives

The joints of the back are complex anatomical structures, subject to a great variety of stresses and strains. In spite of this, and the fact that they carry the upper body weight, dysfunction or injury of these joints is relatively uncommon.

Students undertaking this project will be studying the functional anatomy of **ONE** of these joints, relating its detailed structure to the factors responsible for its stability in a functional or sporting context. This will then be discussed in the context of selected conditions affecting the joint, including their management.

Methods of Study

Self directed study and literature search following an introductory group session. Further individual and group support as required.

Assessment

Each student will produce a written report (suggested maximum of 1500 words).

Title: Anatomy and work related musculoskeletal disorder of the back

Supervisor: Dr Tracey Wilkinson
BIOSI 2
C1.26
Ext. 76156

Email: wilkinsonat@cardiff.ac.uk

Aims and Objectives

Work related musculoskeletal disorders (repetitive strain injury or cumulative trauma disorders) are non-specific injuries of the musculoskeletal and nervous system brought on by repetitive actions. Pain can be felt in the neck, upper back or lower back, worsening with continuation and lessening with reduction of the activity (e.g. driving, computer use).

As these conditions are controversial and linked to both physical and psychosocial factors, students undertaking this project will review the literature on **ONE** disorder and study the detailed functional anatomy of the associated region: neck, upper back or lower back. They will then discuss the relationship between the anatomy and possible aetiologies of the condition, using the principles of evidence-based medicine. The repetitive condition selected must relate to a working (NOT sporting) environment.

Methods of Study

Self directed study and literature search following an introductory group session. Further individual and group support as required.

Assessment

Each student will produce a written report (suggested maximum of 1500 words).

Title: **Molecular biology – in genetic disease.**

Supervisor: Dr Louise Woodgate
C1.15
BIOSI2

Email: Woodgatelj@cf.ac.uk

Aims:

1. To evaluate the impact of molecular biology in elucidating the genetic basis of a chosen disease.
2. To understand the role of molecular biology in the diagnosis and treatment of the disease.
3. To appreciate the impact that molecular biology will have on the future treatment and the ethical implications of that treatment to society.

Objectives:

1. To choose one inherited or acquired disease and review the discovery of its genetic basis emphasising the importance of molecular biology.
2. Review the influence of molecular biology techniques used in the diagnosis and treatment of your chosen disease.
3. Discuss possible future treatments for the disease and the long-term and ethical implications to society of treatment.

The quest for an understanding of how genetic factors contribute to human disease is gathering speed. Forty years ago, the structure of DNA had just been solved and the precise number of human chromosomes was still under debate. The association between Trisomy 21 and Down's syndrome was on the eve of discovery. We are now in an era where the genes for many hereditary genetic disorders have been discovered and the information used for diagnosis and treatment. We are also making headway in understanding the genetic basis for acquired disease such as cancer. The most exciting time is ahead when the function of many of these genes will be elucidated and the development of gene therapies will occur.

Method of study

Self directed study following a one-hour seminar. Support and advice as required. This is a library-based project involving literature search of published information, assimilation and extraction of relevant information. Summary of points of relevance will be necessary and evidence of thought of ethical considerations.

Assessment

A fully referenced word processed report (suggested maximum of 1500 words) and discussion with supervisor. Based on knowledge, understanding and presentation.

Title: “Don’t drink alcohol, pregnant women told”
(Headline in *Daily Telegraph*, 9/11/07)

Supervisor: Professor David Wilson
W1.07
BIOSI2
Tel: 02920 874309

Email: WilsonDJ2@cardiff.ac.uk

Aims and objectives:

During the early weeks of gestation many complex changes occur within the human embryo as its tissues and organs are delineated. These changes normally take place in a controlled manner and a healthy fetus is produced. However, malformations are sometimes induced by teratogenic agents. In this project you will explore some of the ways in which alcohol may damage the developing fetus. At the end of the unit you will be required to submit a 1500 word essay for assessment and you will be expected to give a 10 minute oral presentation based on your essay.

- Develop the facility for critical thinking and analysis
- Practice in the use of library resources
- Presenting information and arguments in a logical and coherent manner
- Acquiring a knowledge and understanding of the harmful effects of ethanol on the human fetus
- Suggest means by which the teratogenic effects of ethanol could be reduced in our society

Method of study:

There will be an introduction to the project and how to get started, followed by overview talks on teratogenic mechanisms and the discovery of Fetal Alcohol Syndrome.

Assessment: Essay & Oral presentation

The essay will take the form of a critical review of the headline based on published evidence and sources of guidance. *It is important that your essay is prepared in the correct format and, submitted on time – suggested word limit is 1500.* The presentation will provide the student with an opportunity to talk about some aspects of the topic. Each talk will last 10 minutes (and will not be permitted to run over this time). The presentation will be assessed by both staff and peers (students will be required to score the presentations). For this reason, all students are expected to attend all the presentations.

**Title: Following The Introduction of HPV Vaccination Is Cervical Cancer Still
Concern for Women in the UK?**

Supervisor: Dr Sam Hibbitts

Room 6ft158, School of Medicine, Cardiff University, Heath Park, Cardiff, CF14 4XN

Tel: 029 2074 4713

Email address: hibbittsj@cf.ac.uk

Background

Persistent infection with Human Papilloma Virus (HPV) is associated with cervical neoplasia and invasive cervical cancer development in women. There are 14 high-risk types of HPV linked with cancer development and two in particular, HPV16 and HPV18 account for 70% of cervical cancer cases worldwide. The available vaccines target HPV16 and HPV18 and have some cross-protective efficacy against other high-risk HPV types. A combination of HPV vaccination and cervical screening would provide an optimal strategy for elimination of cervical cancer long term.

Aims & objectives:

1. To review the opportunities vaccinating the target group (12-13 years) within schools provides.
2. Discuss the positive and negative impact HPV vaccination could have on cervical screening uptake.
3. Consider the key educational messages to be delivered during HPV vaccination.
4. Discuss the positive and negative impact HPV vaccination could have on cervical screening methods and results.
5. Consider which women will remain at highest risk of cervical neoplasia/cancer development.
6. Conclude if cervical cancer will still be a cause for concern in young women in the UK post vaccination.

Method of study:

Self directed learning with support and advice as required following an introductory tutorial with supervisor. This is a library-based project involving research of the literature, and critical analysis of published data.

Assessment:

Written report presenting the information gathered and conclusions (approximately 1500 words).

Title: Cholinesterase inhibitors in Alzheimer's disease

Supervisor: Professor Lesley Jones
Institute of Psychological Medicine and Clinical Neuroscience
School of Medicine, Haydn Ellis Building, Cardiff University,
Maindy Road, Cardiff
Tel: 029 20688069

E-mail address: jonesl1@cf.ac.uk

Aims & objectives:

The National Institute for Clinical Excellence (NICE) produces evidence-based guidelines on treatments that influence their use in the NHS. Alzheimer's disease (AD) causes much morbidity and is estimated to affect 800,000 people currently in the UK. One of the few available treatments for AD is the cholinesterase inhibitors. NICE guidelines on the prescription of cholinesterase inhibitors have been hugely controversial and attracted a great deal of press attention and they have changed several times in the past decade. This SSC will explore the reasons behind the changes in the guidelines.

Method of study:

An introductory tutorial followed by self directed learning, plus further support and advice as required. A final tutorial will bring together the information gathered to set it in context. This is a library-based project involving literature searches and synthesis and analysis of published data.

Assessment:

A written report (1500 words) summarising conclusions, and discussion with supervisor. Based on knowledge, understanding and presentation.