

Bio-Sciences International Summer School 2017 The University of Manchester



2017 BIO-SIS Handbook (Part 1)

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Part 1: A Welcome Message

Manchester Biosciences International Summer School: Bio-SISS

The Faculty of Biology, Medicine and Health at the University of Manchester is delighted to offer a four-week summer school 'Bio-SISS' for undergrad students from our partner universities between Sunday 23rd July 2017 and Saturday 19th August 2017.

Aims: The purpose of this summer course is to provide self-motivated international students who are studying biology or medicine with first-hand experience of cutting edge bioscience/biomedicine, in a world class learning environment that is enriched with British culture. Ranked 30th in the world, the University of Manchester has a high international standing with 25 Nobel Prize winners. We are particularly proud of our strengths in Life Sciences and Medicine disciplines.

During the 4-week summer school, students will attend science-frontiers seminars from world-leading experts, and perform experiments in our state of the art laboratories. Moreover, students will have the opportunity to improve their English writing skills from language experts, and practice their presentation skills in an academic setting to their peers and Manchester academics. In addition to the academic programme, there will also be plenty of opportunities for social activities. These will include a welcome reception and a farewell celebration (involving Manchester academics and students), and trips to local attractions (such as the Old Trafford for those Man United fans, or the Tatton Park for those following Downton Abbey, just to name a few).

We are confident that the summer school programme will leave every participant a fantastic experience that would have lasting impact for the rest of their studies and career.

We look forward to welcoming you to Manchester this July.

Qing-Jun Meng

Senior Research Fellow and Senior Lecturer

Academic Lead of the Bio-SISS

Part 2: The Programme¹

2.1 The Academic Programme

Monday 24th July to Friday 28th July

Week 1: Clinical Microbiology by Dr Nicky High and Dr Jen Cavet
(AM activities approx: 9.30am to 12.30; PM approx. 1.30pm to 4.30pm)

Description of the practical:

To introduce students to the laboratory techniques used in Microbiology to study bacteria. Students will carry out a synthetic epidemic and learn how to identify the source of the infection. In addition they will learn how to use selective media, biochemical test and API strips to identify enteric pathogens.

Monday 31st July – Friday 4th August

Week 2 Group 1: Physiology by Dr Tristan Pocock (*exclusive for Zhejiang University*)
(AM activities approx: 9.30am to 12.30; PM approx. 1.30pm to 4.30pm)

Description of the practical:

The objective of the Physiology practical is to explore the human response to exercise. We will look at the concept of exercise efficiency and ways to measure it. This will involve measuring cardiovascular and respiratory parameters in human subjects under resting conditions and during exercise. Students will be divided into groups and helped to develop a simple measurable hypothesis. They will then devise an experimental protocol in order to test this hypothesis. Much of the remaining time will then be spent collecting data in the lab and then analysing it.

A further practical will investigate the control of ventilation in human subjects using a spirometer to measure the rate and depth of breathing under different conditions.

Monday 31st July – Friday 4th August

Week 2 Group 2: (*exclusive for Shanghai Ocean University*)
Urban Biodiversity & Conservation by Dr Keith White and Prof. Amanda Bamford
(AM activities approx: 9.30am to 12.30; PM approx. 1.30pm to 4.30pm. Two days of fieldtrips)

Description of the practical:

Biodiversity of polluted and unpolluted aquatic systems

Students will learn the theory and practice of methods and approaches used by regulatory bodies, environmental consultants and field-based research scientists to assess impacts on water quality and ecology of rivers subject to the effects of urbanisation.

Students will be introduced to the sources of anthropogenic stress including pollution, river re-engineering and catchment modification. Participants will then carry out assessments of the biodiversity and water quality of urban aquatic sites in Manchester, specifically the semi-natural but polluted Chorlton Brook, the heavily re-engineered River Irwell and a redeveloped freshwater dock complex (Salford Quays).

¹ Profile for teaching staff available at Appendix 4

Assessment will include field surveys and lab-based analysis to assess current water quality and ecology of the study sites. The data will be discussed both in the context of water quality standards and also in relation to current and projected water quality and habitat improvement strategies.

Monday 31st July – Friday 4th August

Week 2 Group 3: Genetics by Dr Kathy Hentges

(AM activities approx: 9.30am to 12.30; PM approx. 1.30pm to 4.30pm)

Description of the practical:

Genetic linkage and mutation detection in human disease.

During this module, students will identify a human disease gene based on linkage analysis of affected families. Upon identification, the gene will then be sequenced to determine the nature of the mutation. Techniques will include: pedigree and genotype analysis; PCR and analysis by agarose gel electrophoresis; fluorescent DNA sequencing and DNA sequence analysis, bioinformatics methods for mutation detection and functional analysis.

Monday 7th August – Friday 11th August

Week 3 Group 1: Pharmacology by Dr. Richard Prince

Description of the practical:

Practical sessions: 1) Computer methods in drug discovery; 2) Drug actions at the rat ileum. Students will generate concentration response curve. The aim of this practical is to provide students with an overview of some important techniques used in drug discovery and development. All experimental sessions will also be supported by e-learning material and laboratory simulation software for students to download (radioligand binding, guinea pig ileum, *Xenopus* oocyte two electrode voltage clamp, wire myograph).

Monday 7th August – Friday 11th August

Week 3 Group 2: Developmental Biology by Dr Karel Dorey and Prof Enrique Amaya

Description of the practical:

The aim is to introduce students to techniques for investigating the role of growth factor signalling in cell fate decision during early development. A seminar will introduce the main molecular and cellular events leading a single cell (the egg) to become an embryo with three germ layers (ectoderm, mesoderm and endoderm). The students will have the opportunity to work with embryos from the frog *Xenopus*. They will observe their development during the course of the week from a single cell to swimming tadpoles. Using micromanipulation, treatment with chemical inhibitors / growth factors and molecular techniques, the students will ask how cell fate is controlled during early embryonic development.

Monday 14th August – Friday 18th August

Week 4: Biochemistry by Dr Hui Lu

(AM activities approx: 9.30am to 12.30; PM approx. 1.30pm to 4.30pm)

Description of the practical:

Enzyme kinetic studies of alcohol dehydrogenase

Students will carry out various experiments to study enzyme kinetic properties of alcohol dehydrogenase using spectroscopic methods. They will learn how to analyze their data and determine the two key enzyme kinetic parameters (V_{\max} and K_m); and investigate how various factors affect enzyme kinetics. This unit will help students enhance their experiment skills, data analysis and mini-project design abilities.

Afternoon of Friday 18th August

Poster presentation/competition!

Award of completion certificate

Wrap up – social event, farewell with Manchester students

Saturday/Sunday 19th and 20th August

Free activities, or join optional trips to other parts of UK (fee not included)

Please check-out date of accommodation by 10am, Sunday 21 August, latest.

2.2. Entertainment / Social Activities

Wednesday Social Trips

We have a number of social trips planned every Wednesday. These include a guided walking tour of the city, visits to the University of Manchester's cultural assets such as [Jodrell Bank](#), [The Manchester Museum](#), [The John Ryland's Library](#) and [The Whitworth Art Gallery](#) plus visits to Manchester United and the city centre. Information can also be found on the schedule at Appendix 1.

Booking Optional Weekend Trips

Information on how to book onto weekend trips is provided on the international society website <http://internationalsociety.org.uk/trips-july-2017/>. Alex from the International Society will also be available in the Welcome Talk during Week 1 to provide further information on this. You can register to attend the weekend activities online or with Alex in your first week.

Optional weekend trips are not included in the course fee.

Part 3: Pre-departure: IMPORTANT to-do List

3.1 Completing your online survey

Please complete the below online survey on or before Friday 7th July 2017

<https://www.survey.ls.manchester.ac.uk/TakeSurvey.aspx?PageNumber=1&SurveyID=n2MK877L&Preview=true>

Early move in requests:

Should you be arriving in Manchester before the 22nd July and require additional night's accommodation, then please advise of this if possible by **completing the above online survey. This** is in order for us to contact the accommodation provider to secure the additional accommodation. Please note, you will have to pay an extra cost of £19 for each additional night you wish to stay.

3.2 Airport pick-up

We confirm that we will arrange for you to be picked up from Manchester Airport on your arrival and taken to your accommodation. We will also arrange for you to be dropped off at the airport on your return journey.

When we will give you more details of this once we have full details of your flights arrival and departure times.

3.3 Contact Mentor

We will have a number of current students to help with your arrival and orientation when you arrive in Manchester. These students are current undergraduate and postgraduate students and will be able to help.

3.4 Travel and Medical Insurance

You must ensure that you are adequately insured for your trip and to take out travel and medical insurance to cover yourself for your return journey and the duration of your stay. It should cover any expenses incurred as a result of lost or stolen, property, late arrival, early or delayed departure, or cancellation due to unforeseen circumstances. The University accepts no liability for loss or damage to student property.

Please ensure you have full personal health insurance are covered during your stay, particularly if you have known medical needs that may require attention and also covers the cost of getting you home in case of severe illness or serious injury. Medical costs are expensive and payment is often needed at the time of treatment.

You will normally be offered the chance to buy travel insurance when you book your airline ticket.

3.5 Money for travelling

Remember to bring some pounds/sterling cash with you for your immediate expenses such as meals. So that you are not carrying too much money when you arrive, we suggest that you have about £80 in cash and some sterling traveller's cheques in small denominations. Traveller's cheques can be cashed at airports, bureau de change and banks. The only 24-hour banks you will find when you arrive in the UK are at the major airports. Most banks open only between 09.30 hrs and 16.30 hrs, Monday to Friday although some now stay open longer.

Do not put cash or any valuable documents in any luggage that you will check in at the airport. Carry these with you at all times.

Do not carry more cash than you require for daily expenses. If cash is stolen, you will probably not be able to get it back. Traveller's cheques should be in small denominations. It is important to keep a record of the serial number on your traveller's cheques so that if they are lost you can inform your bank.

Part 4: Arriving at Manchester

4.1 Immigration Control

When you arrive in the UK whether it is by air or by sea the first thing you will have to do is to go through passport control.

- ☐ Follow the signs for 'Arrivals' unless you are transferring to another plane at the same airport.
- ☐ Arrivals will take you to passport control.
- ☐ As you approach passport control you will see electronic screens which will show you which queue you should join. Make sure that you join the right queue or you could waste a lot of time. There are separate channels for passengers who have UK or EEA passports, and all other passport holders.

At some major airports arriving passengers are also split by flight number for immigration purposes. You will need to remember your flight number later to reclaim your baggage. Your boarding card and ticket stub will have this information. When you reach immigration control you should have all your documents ready and be prepared to answer questions about yourself and what you intend to do during your stay in the UK.

4.2 Baggage Allowance

Always check what your baggage allowance is if you are flying, as the cost of bringing excess baggage may be high.

4.3 Customs

When you arrive at a British port or airport, you will pass through immigration and customs. Customs control the type and amount of goods which are brought into the UK. Please ensure that you have all documentation with you as part of your travel documents.

If you require any further information about customs regulations, please contact the British Embassy or High Commission before you leave for the UK.

The laws relating to drugs are very strict, and the penalty for breaking them is harsh. If you need to bring any drugs, which have been prescribed by your doctor, you must bring evidence of the type of drug you are using otherwise they will be taken away from you. Drugs such as Cannabis, LSD, and Cocaine are prohibited, and Customs Officers and Police have the right to search for illegal drugs. See also [Customs and Excise website](#) for further information on food stuffs not allowed into the UK. **Remember, never allow strangers to carry your bags at ports or airports, and never leave bags unattended.**

4.4. Getting House Key & Accommodation

You will be allocated a key for your room on arrival at the accommodation. The accommodation providers will give you keys to your bedroom, post box and also a fob to gain access to the communal area. It is important that you keep the keys safe. If you lose your key there may be a charge of £35. If a lost key is found within 10 days, then you would receive a refund of the fee.

Accommodation is booked for you at the following address:

Sanctuary Students
12 Denmark Road
Manchester
M15 6GQ

The course fee includes a single bedroom with en-suite facilities. There will be 5 or 6 bedrooms in a flat with a shared kitchen and common area. Electricity, Water and Utilities are included in the cost of the accommodation.

You can find more about the accommodation at this link:

<https://www.sanctuary-students.com/denmark-road>

4.5 Attending Orientation

We will be having an orientation event on your arrival. This will give you the necessary information and familiarization on the use of the equipment within your accommodation. We will also arrange trips to local supermarkets in the location and to assist you in finding your way around.

4.6 Weekly Accommodation Check-in

The accommodation provider requires us to take a weekly register of guest staying in the accommodation. Therefore we will take a roll call of all students on a regular basis.

4.7 Preparing for Academic Work/ Poster Presentation

During teaching time, students will be divided into 10 groups (5 per group). Each group will choose a topic at their own choice (a Bio-SISS topic, English culture, or their experience during the summer school). Each group will produce a poster and present the poster to the rest of the students and academics on Friday 19 August. Posters will be marked by academics and prizes given to the top 3 best posters at the Closing Ceremony. Throughout the summer school, you are encouraged to actively seek for support and guidance from the teaching staff, demonstrators and our student ambassadors.

In addition, each week, our teaching leads will pick one or two students as the Star Performance Award winners with prizes to be presented at the Closing Ceremony on Friday 19 August.

Part 5: Getting around Manchester- Practical Tips

5.1 Cash and expenses

Cash

Do not carry more cash than you require for daily expenses. If cash is stolen, you will probably not be able to get it back. Traveller's cheques should be in small denominations. It is important to keep a record of the serial number on your traveller's cheques so that if they are lost you can inform your bank.

Currency Exchange

There are currency exchange services in main UK airports including the Manchester Airport. However, there may be service charges and handling fees for the use of such service.

On Campus there are a number of major UK/ international banks including a branch of HSBC (汇丰银行). There is a branch of Bank of China (中国银行) in the city center near the China Town. Most banks could offer a currency exchange service at a fee or surcharge.

ATM/ Cash Points

You can withdraw money/ cash in British Pound Sterling by using a cash machine/ ATM. They are available on campus, in super markets and throughout the city. Internationals debit cards may incur a handling fee/ surcharge. In general, if your ATM/ debit card is 'connected' to the VISA/ Masters networks, it should work.

Your card may/ may not be valid depending on the networks available amongst banks. Please check with your bank at home before travelling.

Credit Cards

Most shops and restaurants in the UK accept Visa or Masters' cards. Some department stores/ luxurious shops (e.g. Selfridges) may take UnionPay (银联) but it is not common.

Alipay (支付宝). WeiXin Pay (微信支付) would not be available in shops and retail points, as well as on online platforms, in the UK.

Meals & Pocket Money Needed

Meals are not included with the accommodation. However the accommodation has a fully equipped kitchen (including a rice cooker) and there are a number of supermarkets close by (including a Chinese supermarket). Your ambassador will be able to point these out for you.

Teaching will be conducted between (approx.) 9.30am and 4.30am, Monday to Friday (see schedule). You are advised to prepare for your own lunch. You cannot eat in a lab or teaching room but there will be common areas/ canteens for your lunch break. Also, there are a number of University canteens that provide lunches from £3.

The University advises that, on average, each student would spend approx. £30 each week in the shopping of food and groceries (excluding going to restaurants).

There are also a number of popular restaurants and take-away shops alongside on campus. They provide cooked meals between £5 and £25 per person.

5.2 National Health Service

Some treatment provided by the UK's National Health Service (NHS) is free for everyone:

- accident and emergency services (but not follow-up treatment, or admission as an in-patient to hospital)
- family planning services
- diagnosis and treatment of sexually transmitted infections
- diagnosis and treatment of certain infectious diseases
- treatment of conditions caused by torture, female genital mutilation, domestic violence or sexual violence (provided you did not come to the UK for the specific purpose of seeking such treatment)
- compulsory psychiatric treatment or treatment that has been ordered by a court
- treatment in prison or immigration detention

5.3 Internet, Telephone & Mobile Networks

Internet

You will be provided with free wifi and internet access (Ethernet cable) in your accommodation. The University would provide a wifi account on campus during your stay. Please note these should be used for educational purposes only.

Telephone

There is no land line or desk phone in your bedroom. Normally there will be a cost to make local and international calls on a desk phone.

Mobile network

There are a number of network providers in the UK with most of them offering 'Pay As You Go' sim cards. For a usage of four weeks, they would charge between £5 and £30 with 3G or 4G data allowances and text messages. Calls will be charged on a per minute basis for both local and international calls.

Normally you do not need to register your personal details to purchase a 'Pay As You Go' sim card and they are available from super markets and shops.

5.4 Transportation

The University of Manchester is situated on Oxford Road; this is one of the main routes into Manchester city centre. A bus journey to the city will cost £1 each way; alternatively you can walk to the city, which will take around 20 minutes.

If you want to explore the city and its surroundings at the weekend for £5.80 you can travel to any stop on the Metrolink from Friday at 6pm to the last service on Sunday.

5.5 Weather

We are hopeful for a dry, bright summer but this being Manchester we would recommend you bring an umbrella in off chance it might rain.

5.6 Safety

Manchester, in common with all cities, does experience crime. However, the levels here are no higher than in other major cities across Britain and the world. With our advice and support, students can live sensibly and safely, enjoying all the benefits of city living to the full. We advise our students on being streetwise. Simple measures, such as avoiding the obvious use of smartphones and MP3 players, and avoiding walking home alone at night, can greatly reduce vulnerability to crime.

5.7 Handbags, Luggage and documents

Please remember to carry wallets and purses with you at all times, in a jacket or in a handbag. NEVER leave any of your luggage unattended and do not allow anyone else except official porters to carry your luggage for you. If you have any other valuables, such as jewellery or cameras, remember to keep a record of serial numbers too.

Please remember to keep your passport, travel tickets and important documents in a safe place. It is sensible to have a note in a safe place of the number of your passport, its date and place of issue. If you have a record of this it will be easier to replace it if it is lost. **If you do lose your passport inform the Police and your Embassy immediately.**

5.8 Left Luggage & Lost Property

If you have heavy luggage and do not want to carry it around with you, you can leave it in a 'Left Luggage Office' at most large stations for a small charge and pick it up later. Remember to keep the receipt so that you can reclaim your luggage. Remember - check the hours of opening or you may find that your luggage has been locked away and that you cannot reclaim it for several hours.

If your luggage is lost during a flight, it is important to raise this immediately with the officials of your airline. However since most luggage is found within 3 days, you should not worry too much.

If you lose anything at the airport go immediately to the Lost Property Office as it may already have been found and handed in. Should you lose luggage in the street or suspect that it has been stolen from you rather than lost, find the nearest Police Officer who will advise you what to do.

5.9 Useful phone lines/ websites

Your accommodation: Denmark Road (Building) (With photos)

<https://www.sanctuary-students.com/denmark-road>

Getting around Manchester: The Manchester Chinese Students & Scholars Association has produced an

informative booklet (曼城攻略) for our full degree international students. Many parts are highly relevant to your stay including network providers, shopping tips, sightseeing tips, grocery shopping, food and restaurants.

You can download a copy here:

<http://cssaman.org.uk/arrivalguide/>

The International Society: optional weekend trips

July

<http://internationalsociety.org.uk/trips-july-2017/>

August

<http://internationalsociety.org.uk/trips-august-2017/>

Visit Manchester: official website

<http://www.visitmanchester.com/>

Appendix 1: BIO-SIS 2017 Calendar²

July-August 2017

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				(optional early check-in upon request & availability)	(optional early check-in upon request & availability)	22 Airport pick-up/ Check-in
23 Orientation/ Social Event & briefing by UoM Staff & Students	24 AM: Welcome Speech & Star Lecture (QJ Meng/ Holly Shiels) PM: Intro to Teaching Week (Nicky High & Jen Cavet)	25 Lab work/ Teaching	26 AM: The University of Manchester: Postgraduate Studies International Society: registration of weekend trips PM: Guided Walking Tour of Manchester city centre	27 Lab work/ Teaching	28 Lab work/ Teaching lunch/ PM: Official Welcome Party	29 Optional Trip/ Tour (Int'l Society ³ : Stratford-upon-Avon)

² Updated as of end of Feb, 2017, finalized. Details of venues and times will be advised in Arrival Booklet in mid July. The University reserves rights to change any contents if necessary.

³ Course Fee does not include weekend trips. For fee and information, visit <http://internationalsociety.org.uk/trips-july-2017/> For registration, staff from the International Society will be present on Wed 27 July.

<p>1</p> <p>Optional Trip/ Tour</p> <p>(Int'l Society: South Yorkshire Dales, Skipton & Malham)</p>	<p>31</p> <p>Smith Theatre</p> <p>AM: Star Lecture, Bob Ford</p> <p>PM: Intro to Teaching Week (Kathy Hentges; Keith White & Amanda Bamford – SHOU only; Tristan Pocock – ZJU only)</p>	<p>1</p> <p>Lab work/ Teaching</p>	<p>2</p> <p>Lab work/ Teaching</p> <p>PM: visit Manchester United stadium & football museum OR Trafford Shopping Centre</p>	<p>3</p> <p>Lab work/ Teaching</p>	<p>4</p> <p>Lab work & PhD students consultation session</p>	<p>5</p> <p>Optional Trip/ Tour</p> <p>(Int'l Society: Route 1: York</p> <p>Route 2: South Lake District)</p>
<p>6</p> <p>Optional Trip/ Tour</p>	<p>7</p> <p>Smith Theatre</p> <p>AM: Star Lecture Qing-Jun Meng</p> <p>PM: Intro to Teaching Week (Richard Prince; Karel Dorey)</p>	<p>8</p> <p>RSM 3</p> <p>Lab work/ Teaching</p>	<p>9</p> <p>Lab work/ Teaching & Workshop for Poster Presentation</p> <p>PM: Visit Manchester Museum</p>	<p>10</p> <p>Lab work/ Teaching</p>	<p>11</p> <p>Lab work/ Teaching & Workshop for Postgraduate Applications</p>	<p>12</p> <p>Optional Trip/ Tour</p> <p>(Int'l Society: Route 1: Whitby</p> <p>Route 2: North Wales, Conwy Castle & Llandundno)</p>

13 Optional Trip/ Tour	14 Smith Theatre AM: Star Lecture (Keith Brennan), Guidance for Poster Presentation PM: Intro to Teaching Week (Hui Lu)	15 Lab work/ Teaching	16 AM: Lab work/ data analysis session PM: Guided tour of the Whitworth Art Gallery	17 Lab work/ Teaching	18 Poster competition and Award Ceremony. Farewell social	19 Optional Trip/ Tour (Int'l Society: Liverpool) (Last night of accommo- dation; room CANNOT be extended)
20 Check- out/ Airport departure service						

Appendix 2: Teaching Staff Profile

Dr Qing-Jun Meng: Academic Lead for Bio-SISS 2017 and Arthritis Research UK Senior Research Fellow
Profile: <https://www.research.manchester.ac.uk/portal/qing-jun.meng.html>



Dr Qing-Jun Meng obtained his first degree in Medicine (1996), MSc (1999) and Ph.D (2002) in China. In 2003, Qing-Jun began his post-doctoral training (at the University of Manchester) to investigate the molecular mechanisms and pharmacological resetting of the biological clocks. In 2009, Qing-Jun was awarded a Medical Research Council Career Development Award Fellowship and started his own research group, focusing on circadian clocks, ageing and age-associated diseases. In 2015, Qing-Jun was awarded an Arthritis Research UK Senior Research Fellowship to continue his work into the roles of the circadian clocks in health and disease of the joint tissue.

Professor Keith Brennan: Professor of Developmental Signaling and Deputy Associate Dean for Internationalisation

Profile: <https://www.research.manchester.ac.uk/portal/Keith.Brennan.html>



Professor Keith Brennan works within the Division of Molecular and Clinical Studies within the Faculty of Biology, Medicine and Health. After completing postdoctoral research at the University of Cambridge and Cornell University Professor Brennan returned to the University of Manchester to establish his own laboratory and take up a Wellcome Trust Research Career Development Fellowship. Professor Brennan's research focuses on the role Notch signaling plays in cancer and how the signaling pathway controls cellular behaviors.

Professor Robert (Bob) Ford: Chair in Structural Biology and Academic Lead for Bio-SISS 2017Profile: <http://www.manchester.ac.uk/research/robert.ford>

Professor Ford's research centres on the understanding of the structure of a class of proteins that are found in biological membranes. We have studied a variety of different proteins. The most recent developments in our research have involved the application of new methodology for cryo-electron microscopy of in-situ crystalline arrays to large membrane protein complexes. These have been used to obtain medium resolution structures for this class of proteins. Over the past 10 years our research interests have extended to membrane proteins that are involved in pumping drugs out of cells (multi-drug resistance proteins). Professor Ford's project work involves the use of Biochemical and Biophysical approaches in order to better understand Biological Structures.

Dr Holly ShielsProfile: <https://www.research.manchester.ac.uk/portal/Holly.Shiels.html>

Dr Shiels completed her PhD in Physiology in Canada before completing postdoctoral studies at Stanford University and the University of Leeds. In 2004 Dr Shiels joined the University of Manchester as a Lecturer. Dr Shiels is now a senior Lecturer in the Division of Cardiovascular Sciences and focuses her research on cardiac physiology. Dr Shiels employs a range of techniques to understand cardiac function from molecular biology to cellular cardiology to in vivo and in vitro indices of contractility. Techniques currently being used include electrophysiology; confocal and epi-fluorescence microscopy; gene cloning; Western Blot; immunocytochemistry and immunohistochemistry and tension measurements in single myocytes in response to both mechanical (stretch) and chemical (physiological ligands) perturbation.

Week 1: Clinical Microbiology by Dr Nicky High and Dr Jen Cavet**Dr Nicky High**

Profile: <http://www.ls.manchester.ac.uk/people/profile/?alias=highn&view=research>

Dr. High is a leading scientist in the area of microbiology in relation to medicine and disease. Her particular interests focus on *Haemophilus influenzae* (one of the etiological agents of bacterial meningitis) and *Helicobacter pylori* (which causes gastric ulcers). Funded by the Wellcome Trust, her group use molecular genetic techniques to understand the key factors determining the virulence of the above microorganisms.

**Dr Jen Cavet**

Profile:

<https://www.research.manchester.ac.uk/portal/Jennifer.S.Cavet.html>

Dr Cavet's is the programme director for the BSc Microbiology programme, her research work focuses on the molecular cell biology of metals and bacterial pathogenicity.

Week 2 Group 1: Physiology

(exclusive for Zhejiang University)

Dr Tristan Pocock

Profile: <http://www.ls.manchester.ac.uk/people/profile/?alias=pocockt&view=biography>

Dr Pocock completed his PhD in Manchester in 1998. He then spent some time as a Post-doc, studying the effects of VEGF on microvascular permeability before returning to Manchester in 2004. Since then he has been a Teaching-Focused Lecturer in Physiology and Pharmacology. He is a Programme Director for the Biomedical Sciences course and lead for both medical OSCEs and the Year 1 Student-selected Component (SSC). He teaches extensively on the medical programme and also on the pharmacy, nursing and Life Science programmes. He coordinates Human Biology practical units for 1st and 2nd level students. He is a

Problem-Based Learning tutor to medical students and an academic advisor.

Mon 31st July – Friday 4th August

Week 2 Group 2:

Urban Biodiversity & Conservation (*exclusive for Shanghai Ocean University*)

Dr. Keith White

Profile:

<http://www.manchester.ac.uk/research/keith.white/research>

Dr. White is a Senior Lecturer at the University. He is interested in the hydrography and ecology of urban waterbodies subject to pollution and re-engineering and how such anthropogenic impacts may be monitored and mitigated. He has been instrumental in the implementation of water management and mitigation schemes in Greater Manchester and elsewhere. His other research relates to the behaviour, bioavailability and toxicity of ionic and nanoparticulate trace metals in aquatic systems.

Professor Amanda Bamford

Profile:

<http://www.manchester.ac.uk/research/amanda.bamford/>



Prof. Bamford is a Professor of Plant Science. Following post-doctoral research at University of Lancaster, UK and University of Florida, USA on the impacts of air pollution and global climate change on plants, she joined University of Manchester in 1996 and became Associate Dean for Social Responsibility in 2014. Her interests lay in the areas of environmental biology, phytoplankton analysis and pollution studies. She also runs a field course in tropical ecology and conservation in Costa Rica.

Week 2 Group 3: Genetics

Dr Kathy Hentges

Profile:

<http://www.ls.manchester.ac.uk/people/profile/?alias=hentgesk>



Dr Hentges is a Senior Lecturer at the University. She obtained her PhD at Duke University USA and joined the University of Manchester in 2004. Her research examines the causes of congenital heart defects including projects to determine how the cells of the heart form a complete coronary vascular network during embryonic development. Understanding the process of coronary vessel formation will promote the

discovery of treatments for heart disease. Dr Hentges also coordinates all undergraduate tutorials and specializes in the teaching of genetics for undergraduate students.

Monday 7th August – Friday 11th August

Week 3 Group 1

Pharmacology

Richard Prince

Senior Lecturer In Pharmacology (Teaching Focused)

<http://www.manchester.ac.uk/research/richard.prince/>

Monday 7th August – Friday 11th August

Week 3 Group 2

Developmental Biology



Karel Dorey

http://personalpages.manchester.ac.uk/staff/Karel.Dorey/Dorey_Lab/Home.html

Enrique Amaya



<https://www.research.manchester.ac.uk/portal/Enrique.Amaya.html>

Monday 14th August – Friday 18th August

Week 4: Biochemistry

Dr Hui Lu



Profile:

<https://www.research.manchester.ac.uk/portal/Hui.Lu.html>

Dr. Lu obtained her PhD in Oxford University and held a prestigious Royal Society Research Fellowship. She is a Lecturer at the University. Her research interest is to understand the process of the mitochondrial protein biogenesis, and functional mechanisms of some key enzymes or proteins involved in this process in health and disease.

Appendix 3

University Map (download a copy: <http://documents.manchester.ac.uk/display.aspx?DocID=6507>)



- Accommodation (Sanctuary Building, private hall) to Stopford Building (no.79, main teaching building): 5 min walk
- Shopping/ Groceries: there are a number of supermarkets near building no.79
- Accommodation to City Center. China town: 25-35 min walk; 10-15 min bus ride (£1 per ride; route 142/ 143)

Appendix 4

Manchester City Map (download a copy: <http://documents.manchester.ac.uk/display.aspx?DocID=6507>)

