Dr Elizabeth Hauke
Principal Teaching Fellow and Field Leader, Global Challenges

Dr Mark Pope
Teaching Fellow, Global Challenges
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Introduction

Welcome to Global Challenges

Global Challenges puts your degree in a broader context, connecting disciplines and considering the social, ethical and cultural dimensions of sustainable human development.

Combating climate change, establishing gender equality, preserving biodiversity, access to education and eliminating poverty are just some of the environmental and social pressures that will shape the coming century. They will alter how we live, the risks we face, and the ways that we govern a more interdependent world. Tackling these challenges will require the best available minds to measure and predict impacts and to identify solutions.

Our award winning courses give you the opportunity to research and problem solve your choice of these challenges in multidisciplinary teams, using a range of new and diverse ways of working.

Course Design

The courses have been designed to complement your degree studies rather than to just give you more of the same type of work to do. For this reason, you will be expected to work in a very different way. We don’t have any lectures, and you won’t be told what to learn. You will need to make a lot of choices for yourself – this can be exciting, but also a bit scary. Your tutors will help you to make good learning choices and to achieve excellent results. It doesn’t matter what you think you’re good at, or what you find hard – there will be something in every Global Challenges course that celebrates exactly who you are and helps you to achieve things that you might have thought would be very tricky. We will ask a lot of you, but we will support you all the way.

For each class, you will be given a contract of responsibility. This helps to make it clear exactly what is expected of you during the course. If there is anything that worries you on the contract, you should discuss it with your tutor or the course leader.

Global Challenges Tutoring

On our first and second year courses you will receive extra support during the classes from our course tutors. The course leader will introduce each session and is always available to offer help and support, but you will also be assigned a tutor. Our tutors are PhD students and post-doctoral researchers from the College. They have no specialist knowledge of the global challenge that you are studying, but they are very experienced at being independent learners and thinkers. The fact that you and your tutor are both learning about your chosen topic together is really important – it means that they will be demonstrating their own approach to learning and practically showing you how they would go about researching a new topic. The most important role of the tutor is to help you to develop the type of learning skills that are critical for working on sustainable human development.

Your tutors will not be making any decisions for you, but they will help to make sure that you understand the choices that you make and help you to get the most out of the course.
Having said that, your tutors will also be responsible for marking your work, so you should make sure you listen to their advice!

By the time we get to our 3rd/4th year courses, you will already be more independent and not need individual tutors. However, the course leader is available at any time should you need additional advice or guidance.

Global Challenges Values
The Global Challenges courses will help you to:

- foster an appreciation of the value of \textit{interdisciplinary learning}
- develop confidence in their ability to \textit{learn independently}
- develop a \textit{realistic and evidence-based} approach to ‘global challenges’
- develop an \textit{empathic engagement} with the real world
- establish effective \textit{team working and collaborative practice}
- explore \textit{communication practices} and develop core skills

What Type of Skills do Global Challenges Courses Promote?
In order to help you to approach sustainable human development in an effective and innovative manner, you will be introduced to ways of thinking, learning and researching that come from a range of different disciplines. These include art and design, earth sciences, environmental sciences, environmental studies, economics, geography, history, politics and international relations.

What is Sustainable Human Development and Why is it Important?
Sustainable development is development that improves living conditions in the present without compromising the resources of future generations.

Development is not sustainable when we spend or use all our resources now, leaving future generations with nothing. Sustainable development is growing together, improving the thinking of others and respecting the environment.

To ensure sustainable development, we need to work together to make sure major changes are made to transform into a more just and equitable society. To achieve this, our leaders will have to commit to this change, but we must also do our part. For example, we must give our opinions on issues that affect children and young people, analysing and debating about the world we dream for ourselves and for future generations. We must also take positive actions in our own lives that contribute towards sustainable development like having respect for other people and for the planet.

Global Action for Sustainable Human Development
Created in 1945, the UN is the largest existing international organisation, of which almost all States in the world are members. It is tasked with maintaining peace and security in the
world, helping solve the problems that affect us all, promoting respect for the human rights of all people (including children and young people) and providing support to countries to work together for this purpose.

In the year 2016, there are 193 countries that are members of the United Nations. In 2000, representatives from the (then) 189 Member States of the UN met to adopt the Millennium Declaration. This Declaration created a global alliance to combat poverty. After this meeting, the goals we now know as the Millennium Development Goals (MDGs) were developed.

The MDGs are eight goals that States created to guide joint efforts between international organisations and States to fight poverty and hunger in the world, stop diseases like HIV/AIDS, promote gender equality, and to ensure that more children are able to attend school, among other efforts. These goals were supposed to be achieved by the year 2015 and although much progress has been made, there is still further work to be done.

From time to time, Member States deliver reports to the UN on their work to achieve these goals. The UN reviews the States’ progress and assesses their success in achieving the goals.

The time period for the MDGs ended in 2015 but the world and our governments still need to keep working to fully achieve the MDGs for all people, as well as tackle new issues and problems. For example, many people in the world—more than 1 billion people—continue to live in poverty and many others experience inequality, unfair treatment and discrimination.

For the last few years, the UN has been discussing what should be the global priorities that need to be met within the next 15 years - from 2016 to 2030. These priorities are now called the Sustainable Development Goals (SDGs).

There are 17 Global Goals that cover a number of important issues for the world, including: ending extreme poverty, ensuring all children receive a good education, achieving equal opportunities for all and promoting better practices for consumption and production that will help make the planet cleaner and healthier.

In July 2015, Member States reached a final agreement on the SDGs. The aim of this agreement is to commit efforts towards ensuring that people around the world live better.
without damaging the planet. States will work toward achieving them within the next 15 years, from 2016 to 2030. These Goals, which came after the MDGs ended, are known as the Sustainable Development Goals (SDGs).

The UN led an Open Working Group, comprised of Member States’ representatives, which met 13 times throughout 2013 and 2014. Accompanied by a team of technical experts on education, health, climate and other topics, this group discussed the most pressing issues facing people around the world and standing in the way of improving life for all people and the planet. At the same time, discussions were taking place around the world with ordinary people, giving them the opportunity to express their ideas on what should be in the SDGs. From these discussions, the Open Working Group developed goals and targets that focus on a variety of different themes. For example, some of the topics covered include ending extreme poverty and hunger, and guaranteeing human rights, peace, gender equality, as well as the sustainable management of the environment and natural resources.

Thinking and Talking About Sustainable Human Development

When we think about tackling sustainable human development, we often hear words like multidisciplinary, interdisciplinary and transdisciplinary being used to describe new and fashionable ways of working. These terms have no commonly agreed definitions, and this can lead to confusion. In Global Challenges, we use the words as follows:

- **Multidisciplinary** – bringing together distinct ideas or methods from multiple disciplines to enhance understanding of a phenomena (the disciplinary contributions remain distinct)
- **Interdisciplinary** – synthesising new methods or approaches to a phenomena by combining disciplinary ideas or methods (the disciplinary roots of the contributions are acknowledged, but the product belongs to no discipline)
- **Transdisciplinary** – approaching a phenomena with no disciplinary lens at all (completely independent of disciplinary boundaries)

Thinking outside of disciplinary boundaries can be incredibly helpful, but we must recognise that most of our education and learning experiences have occurred in a strongly disciplinary structure. We have been taught within this framework, and have chosen to specialise within disciplines and sometimes even sub-disciplines. Integrating ideas that step outside these boundaries must therefore begin with a recognition of why these boundaries exist in the first place, and what they mean to us and to the science and engineering professions.

**Disciplinary Contexts**

The great benefit of organising learning and research into disciplines is that it allows a division of labour and greater specialisation of knowledge (Holbrook, 2010). As we learn more and more about the natural world and our presence in it, there becomes too great a body of knowledge for each individual to know everything. In the interests of cultivating
depth of knowledge, the disciplines serve us well. However, the disciplinary approach to the world becomes less useful as the disciplines become more boundaried, and approaches and methodologies become distinct across disciplines. It might therefore be the case that sustainable human development makes demands of engineering that may best be answered from a non-disciplinary standpoint.

Within the domain of sustainable human development there are a number of critical tensions – possibly the most important of which being between the local and global context. Approaches to analysing problems, our valuing of knowledge and expertise and the engagement of communities and implementation of change are all part of this tension. The public discourse encourages us to value the global approach – we are told that global action is needed to combat sustainability challenges such as climate change. But is it global ‘action’ that is required, or rather global engagement with local action? Can any sustainability challenge be answered by a global or widely implemented homogenous response?

**Complexity is the enemy of mastery**

If science and engineering are problem-solving disciplines, and sustainable human development presents a number of problems, why is a new approach needed? The answer lies in the nature of the problem. Unlike our organisation of knowledge, research and technical processes, problems in the real world do not abide by disciplinary boundaries. This means that many problems require the expertise of more than one discipline to be effectively tackled. Hansson (1999) advocates interdisciplinary practice for solving problems of this nature. However, he also notes that interdisciplinarity, “no matter how desirable, is very hard to achieve” (Hansson 1999: p. 340).

There are two helpful approaches that might aid our understanding of why the complexity inherent in the real world presents problems to our existing disciplinary thinking.

Rittel and Weber (1973) have been very influential in their classification of problems as either being ‘tame’ or ‘wicked’. A wicked problem might be defined as one that meets the criteria set out below. These criteria also help us to understand why effective solutions are so hard to achieve.

*The definition of a wicked problem (adapted from Norton, 2012)*

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<tbody>
<tr>
<td>1.</td>
<td>There is no definitive formulation of the problem (the exact nature of the problem is hard to understand)</td>
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<tr>
<td>2.</td>
<td>Wicked problems have no stopping rule (there is no ideal solution or marker that would indicate that the problem has been completely resolved)</td>
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<tr>
<td>3.</td>
<td>Solutions to wicked problems are not true or false (they are usually good or bad, or more often better or worse)</td>
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<tr>
<td>4.</td>
<td>There is no way to test the solution (implementing a solution will cause waves of intended and unintended effects over a limitless timescale)</td>
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</table>
5. Every attempt to solve the problem is the only attempt (by testing the solution you are changing the context and therefore creating a new problem and potential solution that is not tested)

6. Wicked problems do not have a set number of solutions (you can never know whether every solution has been considered)

7. Every wicked problem is essentially unique (when comparing even the most similar wicked problems, there will be some overriding characteristic that differs and is considered important)

8. Every wicked problem is a symptom of another problem (you cannot solve problems by tackling the symptoms alone)

9. Wicked problems can be framed in numerous equally valid ways (there is no correct explanation for a problem, or correct way to view a problem)

10. There is no immunity for unsuccessful intervention (in science, hypotheses are meant to be tested and either corroborated or falsified; whereas the solution to wicked problems needs to be right first time, there is no tolerance for mistakes)

Approaching sustainable human development from a problem solving perspective forces us to reduce complex real world problematic situations to simple, bounded design questions. This might explain why so many attempts to achieve difference and progress with sustainable human development do not succeed. Recognising and acknowledging the complexity in these contexts will require us to think, work and act differently.

Complex systems are nicely defined by Snowden and Boone (2007):

- they involve large numbers of interacting elements that interact in a non-linear fashion
- the history of the system is integrated with the present
- they are dynamic and are more than the sum of their parts
- they may appear ordered and predictable when they are not

Snowden’s Cynefin Framework (2000) can further help us to see the difference in approach needed depending on the complexity of the situation. He defines four types of situation – simple, complicated, complex and chaotic. Simple and complicated situations are ordered, with obvious cause-and-effect relationships. Examination of the situation can help you to determine correct answers or actions. Complex and chaotic situations are not ordered and have no obvious cause-and-effect relationships. Correct actions or solutions cannot be pre-determined, but rather ‘emerge’ from the situation itself. He also goes on to describe a fifth state, ‘disorder’, where multiple perspectives vie for prominence, and there is much conflict.
Whether we view sustainable human development as a set of wicked problems, or as complex, chaotic or disordered situations, it is clear that standard problem-solving approaches are unlikely to achieve helpful solutions.
References


**Global Challenges Courses**

The Global Challenges field of Imperial Horizons has eight different courses. You could take a Global Challenges course each year of your study here at Imperial, or you could mix and match them with courses from the other fields of Imperial Horizons. You do not need to have taken a previous Global Challenges course to join any of our second or third/fourth year courses.

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<tr>
<td>The World Today</td>
<td>8 weeks</td>
<td>Independent and collaborative learning</td>
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<tr>
<td>Sustaining Our Future</td>
<td>8 weeks</td>
<td>Interdisciplinary research</td>
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<td>Synthesis and knowledge building</td>
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<td>Developing global perspectives</td>
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<td><strong>2nd Year Courses</strong></td>
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<td>Interdisciplinary complex systems analysis</td>
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<td>Problem solving and design practices</td>
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<tr>
<td>Design for Local Sustainability</td>
<td>20 weeks</td>
<td>Collaborative learning</td>
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<td>Public engagement</td>
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<td>Design for Sustainable Human Development</td>
<td>20 weeks</td>
<td>Contextual exploration of cutting edge science</td>
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<td>Communication practices</td>
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<td>Development of local perspectives</td>
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<td>Visualising Global Challenges</td>
<td>20 weeks</td>
<td>Empathic engagement with a real community</td>
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<td><strong>3rd/4th Year Courses</strong></td>
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<td>Lessons From History</td>
<td>20 weeks</td>
<td>Evidence-based practice</td>
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<td>Evaluation and analysis</td>
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<td>Integration of new insights from a range of events</td>
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<td>Translation of local to global perspectives</td>
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<tr>
<td>Independent Project</td>
<td>20 weeks</td>
<td>Consolidation of previous work and further development of independent learning</td>
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International Award

The Global Challenges field of Imperial Horizons was recognised by a European Commission award in 2015 for all eight of our courses. The award is for the Integration of Sustainable Human Development into Engineering, Science and Technical Education. A survey was carried out across the EU to examine the different ways that universities address sustainable human development, and our programme was recognised as one of the best ten programmes. We received our award at a ceremony in Barcelona last year.

Student Academic Choice Award

Students on our 3rd/4th year course Lessons From History nominated us for a Student Academic Choice Award for Best Innovation in 2015.

We were very proud to win the award, especially as it comes from students who have taken a Global Challenges course, worked hard and contributed a lot to the success of the programme.

We were nominated again for the same award in 2016.
HGC11 - The World Today
This course allows you to work with a team of students from across college to find out the latest about a global challenge that really interests you. We want to build up a complete picture of all the big issues facing civilisation - it's a huge task, but if the whole class works together in teams to tackle a single issue each, we can produce a really good knowledge base about the most important global challenges.

You will work in a team to find out about one particular challenge, whilst other student teams are researching different global issues. Together we will create a wiki to share what we find out. This means that you will spend time finding out about something that matters to you, but you will also benefit from the work of all the other teams.

Each week we will look at a different aspect of our global challenges together, before spending the rest of the session in our teams working on our own topics.

Learning Objectives
On successful completion of the course you will be able to:
• Understand the key principles and concepts relevant to your chosen global challenge, as well as having an awareness of those relevant to other global challenges
• Identify and articulate the key issues and potential solutions within your challenge area
• Synthesise a body of knowledge about your chosen global challenge, drawing from a range of primary and secondary sources, and integrating theories and concepts from a range of disciplines
• Document your learning on Blackboard Learn, and collaboratively develop a Wiki for your chosen challenge
• Participate in group discussion and debate about the key issues, and present your key learning points with a collaborative wiki and presentation

Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<td>Tuesday 25th October</td>
<td>Introduction to Global Challenges</td>
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<tr>
<td>Tuesday 1st November</td>
<td>What is the current status?</td>
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<tr>
<td>Tuesday 8th November</td>
<td>Measuring on a global scale</td>
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<tr>
<td>Tuesday 15th November</td>
<td>Communicating uncertainty</td>
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<tr>
<td>Tuesday 22nd November</td>
<td>Predicting the future</td>
</tr>
<tr>
<td>Tuesday 29th November</td>
<td>Assessment: Completion of wikis</td>
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<tr>
<td>Tuesday 6th December</td>
<td>Assessment: Presentations</td>
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<tr>
<td>Tuesday 13th December</td>
<td>Building the big picture and prizes</td>
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</table>
Contract of Responsibility

Attendance

1. I will try to attend every session of this course and understand that I must attend at least six out of the eight sessions, including the final three sessions in order to pass.
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day.
3. I will arrive at the lecture session promptly and understand that being late is discourteous and is not acceptable.
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity.

Group Working

5. I will be a productive member of both the whole Global Challenges group and my Discussion Group.
6. I will be attentive during the weekly initial workshop and will ask questions or participate in discussions.
7. I will participate actively in all activities during the discussion sessions.

Independent Learning

8. I understand that the material presented during the workshops is a small part of the learning that is expected of me and I will need to apply this to my challenge area and carry out further reading and research as stimulated by the discussion sessions.

Blackboard Learn

9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my discussion group.
10. I will collaborate fully with my discussion group to produce a Wiki to document our investigations into our challenge area, and I will access the Wikis of other groups to leave questions and comments.

Assessment

11. I understand that I am being continually assessed during this course and know that it is my responsibility to demonstrate development of core skills and good group working to my tutor, both in the discussion sessions and on Blackboard Learn.

Signed ________________________________ Date ________________________________
Group Working Guidelines

Group working is an important and difficult skill to master. It’s a good idea to start with a set of good practice rules, and reflect on them as your group work progresses. For example, you might want to consider:

✴ Every group member should contribute their ideas and opinions to the discussion
✴ Have respect for the ideas and opinions of other group members
✴ Don’t interrupt other group members when they are speaking
✴ Don’t dominate the discussion - give other people a chance to speak
✴ Constructively criticise other people’s arguments, but don’t criticise each other
✴ Listen when other people are speaking and respond when appropriate
✴ Agree that there are no stupid questions or contributions - everyone has different knowledge and experience and this must be respected
✴ Prepare between classes by completing the assigned readings, looking for further resources and by following up on interesting points from each session

Try to put together a set of rules that your group will stick to - you can revise them as the programme progresses:

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Assessment

Your assessment in this course is composed of three elements:

- Course Performance (40%) - a continuous assessment of your critical engagement with the course content and process
- Wiki (40%) - produced in small groups in class time
- Group Presentation (20%) - a short presentation of key points of your global challenge

Your course performance mark is formed of two components. Your tutor will be assessing your participation in discussions and your contribution to the learning of your group. Additionally, you will be asked to complete a learning inventory at the start of the course and to set yourself a learning goal. At the end of the course, you will be asked to comment on your achievement of that goal. This will count towards your Course Performance mark.

The mark for the wiki is composed of both a mark from your tutor and a peer-mark. Each discussion group will mark the wiki of another group, and this mark will contribute towards the final wiki mark. Preparing to mark the wiki of another group will really help you to understand how to make the most of your own wiki. You will be given a detailed mark scheme to help you with this.

Your group presentation requires no formal preparation other than deciding the order in which you will speak. You will each speak for just one minute about the most important things you have learned in your group. You should not use any notes or visuals such as PowerPoint. The idea is that you just speak freely about your chosen topic. This might sound a little scary, but every year our students give fantastic presentations – this method is a great way of improving your presentation skills for more formal presentations in your degree studies.

Please note that all of your assessment will take place during class time.
### Resit Policy

#### Course Performance
- If a student fails the course performance element of the course, this is weighted in the final grade and no resit opportunity is given
- If a student fails the course performance element by non-attendance, a fail grade is given for the whole course

#### Wiki
- If a student fails to submit or participate in the group wiki due to extenuating circumstances (i.e. due to timetabling issues with field trips) the student is offered assessment with a viva
- If a student fails to submit or participate in the group wiki otherwise, a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group wiki, they will be offered a viva to increase their course mark to a capped pass

#### Group Presentation
- If a student fails to participate in the group presentation due to extenuating circumstances (i.e. due to timetabling issues with field trips) the student is offered assessment with a viva
- If a student fails to participate in the group presentation otherwise, a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group presentation, they will be offered a viva to increase their course mark to a capped pass
HGC12 – Sustaining Our Future

Find out about what action we can take to ameliorate global challenges, such as poverty, disease and climate change.

This course allows you to work with a team of students from across college to find out the latest about solving a global challenge that really interests you. There will be several student teams all researching different issues, and creating a wiki to share what they find out with the rest of the class. So you will spend time finding out about something that matters to you, but will also get to contribute to research into a lot of other areas too.

Each week we will consider different ways of ‘testing’ and developing potential solutions to global challenges, before spending the rest of the session in your teams working developing a pitch for your chosen solution.

Learning Objectives

On successful completion of the course you will be able to:

- Identify and articulate potential solutions for your chosen global challenge, and locate data and evidence to indicate whether the solution has been tested and/or applied in specific controlled situations or globally
- Understand and apply evaluation methodologies from a range of disciplines to potential solutions for your chosen global challenge, analyse and interpret the results
- Synthesise a body of knowledge on how change is most likely to occur in your challenge area, and focus on researching solutions that have the greatest chances of success
- Document your learning on Blackboard Learn, and collaboratively develop a Wiki for your chosen challenge
- Participate in group discussion and debate about the key issues, and present your key learning points with a poster presentation

Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday 17(^{th}) January</td>
<td>Introduction to Global Challenges</td>
</tr>
<tr>
<td>Tuesday 24(^{th}) January</td>
<td>What is the background to your challenge?</td>
</tr>
<tr>
<td>Tuesday 31(^{st}) January</td>
<td>Evaluation of goals and targets</td>
</tr>
<tr>
<td>Tuesday 7(^{th}) February</td>
<td>Researching potential solutions</td>
</tr>
<tr>
<td>Tuesday 14(^{th}) February</td>
<td>Budget allocation and building your proposition</td>
</tr>
<tr>
<td>Tuesday 21(^{st}) February</td>
<td>Assessment: Completing your pitch</td>
</tr>
<tr>
<td>Tuesday 28(^{th}) February</td>
<td>Assessment: Pitching your chosen proposition</td>
</tr>
<tr>
<td>Tuesday 7(^{th}) March</td>
<td>Building the big picture and prizes</td>
</tr>
</tbody>
</table>
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at
least six out of the eight sessions, including the final three sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or
at the latest by midday on the following day
3. I will arrive at the lecture session promptly and understand that being late is
discourteous and is not acceptable
4. I will discuss any problems with attendance or punctuality with the course leader at
the earliest opportunity

Group Working
5. I will be a productive member of both the whole Global Challenges group and my
Discussion Group
6. I will be attentive during the weekly initial workshop and will ask questions or
participate in discussions
7. I will participate actively in all activities during the discussion sessions

Independent Learning
8. I understand that the material presented during the workshops is a small part of the
learning that is expected of me and I will need to apply this to my challenge area
and carry out further reading and research as stimulated by the discussion sessions

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning
and to collaborate and demonstrate good team working with other members of my
discussion group
10. I will collaborate fully with my discussion group to produce a Wiki to document our
investigations into our challenge area, and I will access the Wikis of other groups to
leave questions and comments

Assessment
11. I understand that I am being continually assessed during this course and know that it
is my responsibility to demonstrate development of core skills and good group
working to my tutor, both in the discussion sessions and on Blackboard Learn

Signed ________________________________ Date ____________________
Group Working Guidelines

Group working is an important and difficult skill to master. It’s a good idea to start with a set of good practice rules, and reflect on them as your group work progresses. For example, you might want to consider:

✴ Every group member should contribute their ideas and opinions to the discussion

✴ Have respect for the ideas and opinions of other group members

✴ Don’t interrupt other group members when they are speaking

✴ Don’t dominate the discussion - give other people a chance to speak

✴ Constructively criticise other people’s arguments, but don’t criticise each other

✴ Listen when other people are speaking and respond when appropriate

✴ Agree that there are no stupid questions or contributions - everyone has different knowledge and experience and this must be respected

✴ Prepare between classes by completing the assigned readings, looking for further resources and by following up on interesting points from each session

Try to put together a set of rules that your group will stick to - you can revise them as the programme progresses:

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Assessment

Your assessment in this course is composed of three elements:

- **Course Performance (40%)** - a continuous assessment of your critical engagement with the course content and process
- **Wiki (40%)** - produced in small groups in class time
- **Group Pitch (20%)** - a short presentation of your proposition

Your course performance mark is formed of two components. Your tutor will be assessing your participation in discussions and your contribution to the learning of your group. Additionally, you will be asked to complete a learning inventory at the start of the course and to set yourself a learning goal. At the end of the course, you will be asked to comment on your achievement of that goal. This will count towards your Course Performance mark.

The mark for the wiki is composed of both a mark from your tutor and a peer-mark. Each discussion group will mark the wiki of another group, and this mark will contribute towards the final wiki mark. Preparing to mark the wiki of another group will really help you to understand how to make the most of your own wiki. You will be given a detailed mark scheme to help you with this.

Your group pitch should be in the style of an elevator pitch. You should not use any notes or visuals such as PowerPoint. The idea is that you just speak passionately and energetically about your proposition – we can always go and look at your wiki to find out more detail. This might sound a little scary, but every year our students give fantastic pitches – this method is a great way of improving your presentation skills for more formal presentations in your degree studies.

Please note that all of your assessment will take place during class time.
**Resit Policy**

**Course Performance**

- If a student fails the course performance element of the course, this is weighted in the final grade and no resit opportunity is given.
- If a student fails the course performance element by non-attendance, a fail grade is given for the whole course.

**Wiki**

- If a student fails to submit or participate in the group wiki due to extenuating circumstances (i.e., due to timetabling issues with field trips) the student is offered assessment with a viva.
- If a student fails to submit or participate in the group wiki otherwise, a mark of 0 is awarded and this is weighted in the final grade.
- If a student fails their group wiki, they will be offered a viva to increase their course mark to a capped pass.

**Group Pitch**

- If a student fails to participate in the group pitch due to extenuating circumstances (i.e., due to timetabling issues with field trips) the student is offered assessment with a viva.
- If a student fails to participate in the group pitch otherwise, a mark of 0 is awarded and this is weighted in the final grade.
- If a student fails their group pitch, they will be offered a viva to increase their course mark to a capped pass.
HGC21 Design for Sustainable Development

This course offers you the chance to explore international development with a detailed real-world case study set in Lobitos, Peru. You will focus on identifying the issues faced by the community, the key stakeholders and their varied perspectives on the problems.

You will then work in teams to design a practical solution to an issue that you have identified as being critical for the community. You will begin by producing multiple conceptual designs before voting to decide on the strongest ideas to take forward to technical specification and finally presentation to the community.

You will have a large amount of freedom to focus on the aspects of international development that you are most interested in. In response to student feedback, all the Global Challenges second year courses will be taught collaboratively - meaning that you will be working alongside other students who are studying the same community, but from different perspectives.

Following the completion of the course, your assignment will be submitted to the national Engineers Without Borders (EWB-UK) competition, where you’ll compete against students from other universities for an amazing prize.

We work closely with EWB-UK to ensure that the project work that you complete as part of Imperial Horizons meets all the requirements of the national competition. This means that you do one piece of work, and it is eligible both to be graded for Horizons and to be entered into the competition.

Learning Objectives

On successful completion of the course you will:

• Understand the complexity of trying to define development; and develop and justify the use of your own definition

• Understand the specifics of the design brief provided, and use soft systems methodology to fully explore and analyse the problematical situation you will be designing for

• Learn how to write a well-defined design question that will be answered during the project using SMART objectives

• Design a series of potential solutions to the design question

• Analyse the potential solutions using a binary dominance matrix to identify the solution that is most likely to be successful

• Work up the final design into a fully specified solution and identify any further expertise that would be required to bring the design up to a standard for immediate implementation

• Show consideration of the ‘global dimension’ (social, cultural, economic and sustainability perspectives) in the design solution

• Create an implementation guide that introduces the design concept, addresses issues such as implementation, operation and maintenance and tackles the issue of local engagement with the concept

• Plan, monitor and review progress as an independent learner
### Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Common Core</th>
<th>Project Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 10th October</td>
<td>Defining international development, poverty and sustainability; introduction to boundary critique and soft systems methodology</td>
<td></td>
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<tr>
<td>Monday 17th October</td>
<td>Preparation of Case Study Analysis (deadline for submission of Case Study Analysis: 6pm Monday 7th November)</td>
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<tr>
<td>Monday 24th October</td>
<td>Pressure cooker challenge: using creativity tools</td>
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<tr>
<td>Monday 31st October</td>
<td>Development of design questions</td>
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<tr>
<td>Monday 7th November</td>
<td>Conceptual Designs (deadline for completion of sketch book and upload of design series: 6pm Monday 12th December)</td>
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<tr>
<td>Monday 14th November</td>
<td>Feedback of Case Study Analysis</td>
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<tr>
<td>Monday 21st November</td>
<td>Technical specification of design study</td>
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<tr>
<td>Monday 28th November</td>
<td>Conceptual Designs</td>
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<tr>
<td>Monday 5th December</td>
<td>Pitching of design series</td>
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<tr>
<td>Monday 12th December</td>
<td>Feedback on Conceptual Designs, result of vote and team formation</td>
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<tr>
<td>Monday 16th January</td>
<td>Technical specification of chosen design, development of design concept proposal; and, a short consultancy report on another team’s work (deadline for submission of draft Final Concept Proposal and consultancy report: 6pm Monday 13th February).</td>
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<tr>
<td>Monday 23rd January</td>
<td>Feedback on Conceptual Designs</td>
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<tr>
<td>Monday 30th January</td>
<td>Technical specification of design study</td>
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<tr>
<td>Monday 6th February</td>
<td>Technical specification of chosen design, development of design concept proposal; and, a short consultancy report on another team’s work (deadline for submission of draft Final Concept Proposal and consultancy report: 6pm Monday 13th February).</td>
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<td>Technical specification of design study</td>
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<td>Technical specification of chosen design, development of design concept proposal; and, a short consultancy report on another team’s work (deadline for submission of draft Final Concept Proposal and consultancy report: 6pm Monday 13th February).</td>
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<tr>
<td>Monday 27th February</td>
<td>Technical specification of design study</td>
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<tr>
<td>Monday 6th March</td>
<td>Development of Implementation Guide and supporting media materials (deadline for submission of Implementation Guide and Final Concept Proposal: 6pm Monday 20th March)</td>
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<tr>
<td>Monday 13th March</td>
<td>Development of Implementation Guide and supporting media materials (deadline for submission of Implementation Guide and Final Concept Proposal: 6pm Monday 20th March)</td>
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</tbody>
</table>
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at least fifteen out of the twenty sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day
3. I will arrive at the sessions promptly and understand that being late is discourteous to the rest of my group
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity

Group Working
5. I will be a productive member of my project group
6. I will participate actively during the sessions
7. I will undertake independent research and idea development between sessions and will share this with my group via Blackboard Learn

Independent Learning
8. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my group

Assessment
10. I understand that I am being continually assessed during this course and that I must complete all the elements of assessment in order to pass the course
11. I understand that for group submissions, I must complete a group contribution form that details my contribution to the submission
12. I understand that formal assessment of my project will include the production of a 10-page design portfolio, the final version of which will be submitted to the Engineers Without Borders national competition

Signed ___________________________ Date _________________
Assessment
Your assessment for this course is composed of four elements:

- Case Study Analysis – written report (20%)
- Conceptual Designs (15%)
- Final Concept Proposal – including full technical specification (50%)
- Implementation Guide (15%)

Your Case Study Analysis
Your case study analysis should include:

1. An overview rich picture
2. Three ‘world view’ rich pictures
3. A ‘purposeful activity’ rich picture
4. 1000-2000 word summary, including:
   4.1. An overview of the community you are studying.
   4.2. A reflection on the use of the rich pictures and how this has allowed you to develop an understanding of the community.
   4.3. Analysis of where you think there might be opportunities for intervention.

The rich pictures can be photographed and uploaded individually, or copied and pasted into your document. They should be hand drawn.

Your Conceptual Designs
You should develop your conceptual designs in your sketchbook – you should try to fill the book with as many ideas as possible. Remember it doesn’t matter whether the designs are practical or would work in the real world. The more ideas you get down on paper, the more creative your final choice will be. You will submit the sketchbook as part of your assessment.

Your best design series (three linked designs) should be submitted online via Blackboard Learn. All students will vote over the Christmas break for the designs that they think are the best to take forward to technical specification.

In addition, a ‘Pressure Cooker Challenge’ task will constitute a very small part of this assessment. The task is designed to help you think innovatively with your colleagues and it will take place in class on Week 6 before you start sketching. The Challenge will involve the use of creativity tools provided by your tutor on the day. No preparation is necessary.
Your Final Concept Proposal

Your final concept proposal will take the form of a design portfolio. It should contain:

1. Evidence of your case study analysis (at least one of your rich pictures and a commentary – you may need to redraw this as you will now be working in a different team) describing the value of the rich picture in helping you understand more about the community
2. Your design question (and a short commentary about the evolution of the question throughout the project, or any difficulty you had defining the design question)
3. The conceptual design that you began with after Christmas (and a commentary about how you selected and developed this design)
4. The technical specification
5. A discussion of relevant social, political and economic issues
6. A brief description of how your design will be implemented

Consultancy Reports

You will be also asked to provide a short consultancy report on the work of another team and also a short response to consultancy reports on your work. This is designed to encourage constructive peer assessment and will also constitute a small portion of the marks for this assessment.

Your Implementation Package

Your implementation package should be designed for the community in Lobitos. You should create a multimedia package that describes your design and provides information about implementation such as training requirements, funding and maintenance.

Your package might include:

- a filmed presentation
- slides
- animation
- graphics
- voice over
- pamphlets and posters
- film

Resit Policy

Group Written Assignments

- If a student fails to submit or participate in the group assignment a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass

Individual Written Assignments
If a student fails to submit their individual assignment, they receive a mark of 0 and this is weighted in their final grade.

If a student fails their individual assignment, they will be offered the chance to resubmit their assignment to increase their course mark to a capped pass.

**Group Presentation**

- If a student fails to participate in the group presentation due to extenuating circumstances (i.e. due to timetabling issues with field trips) the student is offered assessment with a viva.

- If a student fails to participate in the group presentation otherwise, a mark of 0 is awarded and this is weighted in the final grade.

- If a student fails their group presentation, they will be offered a viva to increase their course mark to a capped pass.

**Group Multimedia Project**

- If a student fails to submit or participate in the group project a mark of 0 is awarded and this is weighted in the final grade.

- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass.
HGC22 Visualising Global Challenges

This course offers you the chance to explore international development with a detailed real-world case study set in Lobitos, Peru. You will undertake analysis of communication from within the community and from the development community, before developing your own ideas on how to express related issues through Art.

You will then explore the cutting edge research that is being carried out here at Imperial, interview the researchers and be given the opportunity to produce artwork inspired by the potential of that science to change the lives of the community. Ultimately, you will produce an art exhibit that will be displayed on campus and presented at a public showcase event.

You will have a large amount of freedom to focus on the aspects of international development that you are most interested in. In response to student feedback, all the Global Challenges second year courses will be taught collaboratively - meaning that you will be working alongside other students who are studying the same community, but from different perspectives.

Learning Objectives

On successful completion of the course you will be able to:

- Understand the complexity of trying to define development; and develop and justify the use of your own definition
- Reflect critically on the use of visuals, presentation and representation to communicate complex issues related to development or science with a lay audience
- Understand the specifics of the case study, and use soft systems methodology to fully explore and analyse the problematical situation
- Research an area of cutting edge science that would assist the community in the case study and consider the complex social, ethical, economic and political implications of using the science in the real world
- Design and produce a representational piece of work to communicate contextual issues about science or development to a lay audience
- Plan, monitor and review your progress as an independent learner
- Engage in peer review of other students’ work and respond to critiques of your own
## Class Schedule

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<td>Monday 24th October</td>
<td>Pressure cooker challenge: communications analysis</td>
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<tr>
<td>Monday 31st October</td>
<td>Identification of key issues and concepts for focus</td>
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<tr>
<td>Monday 7th November</td>
<td>Conceptual Development (deadline for submission of sketchbooks and mood board: 6pm Monday 12th December)</td>
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<td>Monday 14th November</td>
<td>Project Focus:</td>
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**Common Core**

**Project Focus**
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at least fifteen out of the twenty sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day
3. I will arrive at the sessions promptly and understand that being late is discourteous to the rest of my group
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity

Group Working
5. I will be a productive member of my project group
6. I will participate actively during the sessions
7. I will undertake independent research and idea development between sessions and will share this with my group via Blackboard Learn

Independent Learning
8. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my group

Assessment
10. I understand that I am being continually assessed during this course and that I must complete all the elements of assessment in order to pass the course
11. I understand that for group submissions, I must complete a group contribution form that details my contribution to the submission

Signed _____________________________ Date ____________________
Assessment
Your assessment for this course is composed of four elements:

- Case Study Analysis – written report (20%)
- Conceptual Development – Communications Analysis, Sketchbooks and Mood Board (15%)
- Final Exhibition Artwork – including written review (50%)
- Final Exhibit Report (15%)

Your Case Study Analysis
Your case study analysis should include:

1. An overview rich picture
2. Three ‘world view’ rich pictures
3. A ‘purposeful activity’ rich picture
4. 1000-2000 word summary, including:
   4.1. An overview of the community you are studying.
   4.2. A reflection on the use of the rich pictures and how this has allowed you to develop an understanding of the community.
   4.3. Analysis of where you think there might be opportunities for intervention.

The rich pictures can be photographed and uploaded individually, or copied and pasted into your document. They should be hand drawn.

Conceptual Development: Communications Analysis, Sketchbooks & Mood Board
The communications analysis will be conducted as part of the ‘Pressure Cooker Challenge’ task in Week 6 and will also constitute a small part of this assessment. You will analyse a piece of communication given to you by your tutor on the day. In your short analysis you will try to identify who the key voices are, and who has ‘power’ within the communication.

You should develop the concepts you would like to represent in your sketchbook. Try to fill the book with as many ideas as possible. The more ideas you get down on paper, the more creative your final choice will be. You will submit the sketchbook as part of your assessment.

The mood board should be presented to the Visualising Global Challenges students at the end of the first term. Any variety of visuals, texts, materials can be used on the board. It should be more focused than your sketch book and represent the development of your ideas up until that date. The aesthetic qualities of the mood board will be assessed, along with the content or substance of the ideas conveyed.
Final Exhibition Artwork and Review
Your artwork should meet the following brief:

1. The artwork must be suitable for display in the gallery space in the Centre for Languages, Culture and Communication, it can take any form (drawing, painting, poem, small object etc.)
2. Your artwork can be online (e.g. an animation or film) but you will need to produce a physical representation of it for display in the gallery
3. The artwork should reflect the social or ethical aspects of your chosen theme, rather than the technical or scientific aspects
4. You must have the required skills to create your object - e.g. do not try to create a wooden carving if you have no carving experience
5. You must provide an evidence base for your artwork, documented on blackboard and included in the gallery guide
6. You must provide an accompanying plaque text for display with your artwork
7. You must provide images and text for the gallery guide
8. You will be assisted in covering the costs of producing your artwork, after consultation with your tutor

You will engage in two exercises of peer-review. Firstly, you should produce a short review of one of your colleagues’ artworks. Secondly, you should write a short consultancy report on the work of a team from another stream. The report should be on potential communications issues concerning their project and should be critical, but sensitive.

Final Exhibit Report
Your final exhibit report should be a 1500-2000 word summary of:

1. Your working process in designing and producing your artwork
2. Critical reflections on the success of your work
3. Suggestions for changes you would make if you were to undertake the work again
4. Your response to the reviews of your work
5. Your experience of having your work on display and of seeing the reaction of other people to your work

Resit Policy

Group Written Assignments

- If a student fails to submit or participate in the group assignment a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass

Individual Written Assignments

- If a student fails to submit their individual assignment, they receive a mark of 0 and this is weighted in their final grade
- If a student fails their individual assignment, they will be offered the chance to resubmit their assignment to increase their course mark to a capped pass

### Group Presentation

- If a student fails to participate in the group presentation due to extenuating circumstances (i.e. due to timetabling issues with field trips) the student is offered assessment with a viva
- If a student fails to participate in the group presentation otherwise, a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group presentation, they will be offered a viva to increase their course mark to a capped pass

### Group Multimedia Project

- If a student fails to submit or participate in the group project a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass
HGC25 Design for Economic Development

This course offers you the chance to explore international development with a detailed real-world case study set in Lobitos, Peru. You will focus on identifying the issues faced by the community, the key stakeholders and their varied perspectives on the problems.

You will then work in teams to design an economic innovation that will help to resolve poverty by tackling an issue that you have identified as being critical for the community. You will begin by producing multiple conceptual ideas before voting to decide on the strongest ideas to take forward to business model development and finally presentation to the community.

You will have a large amount of freedom to focus on the aspects of international development that you are most interested in. In response to student feedback, all the Global Challenges second year courses will be taught collaboratively - meaning that you will be working alongside other students who are studying the same community, but from different perspectives.

Following the completion of the course, your assignment will be submitted to the national Engineers Without Borders (EWB-UK) competition, where you'll compete against students from other universities for an amazing prize.

We work closely with EWB-UK to ensure that the project work that you complete as part of Horizons meets all the requirements of the national competition. This means that you do one piece of work, and it is eligible both to be graded for Horizons and to be entered into the competition.

Learning Objectives

On successful completion of the course you will:

- Understand the complexity of trying to define poverty; and develop and justify the use of your own definition
- Understand and apply soft systems methodology to analyse a complex problematical situation
- Use rich pictures to further your own understanding and to communicate your analysis with others
- Understand various business models that could be used for innovating in poverty-stricken communities
- Analyse your own case study of poverty and design an economic innovation to create change in your community and alleviate poverty
- Present a mini-business plan for this innovation using Osterwalder’s business model canvas
- Analyse the potential difficulties with implementing the innovation in the real world setting
### Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 10th October</td>
<td>Defining international development, poverty and sustainability; introduction to boundary critique and soft systems methodology</td>
</tr>
<tr>
<td>Monday 17th October</td>
<td>Preparation of Case Study Analysis (deadline for submission of Case Study Analysis: 6pm Monday 7th November)</td>
</tr>
<tr>
<td>Monday 24th October</td>
<td>Pressure cooker challenge: the Business Model Canvas</td>
</tr>
<tr>
<td>Monday 31st October</td>
<td>Start on Conceptual Designs</td>
</tr>
<tr>
<td>Monday 14th November</td>
<td>Conceptual Designs (deadline for completion of sketch book and upload of design series: 6pm Monday 12th December)</td>
</tr>
<tr>
<td>Monday 21st November</td>
<td>Feedback on Conceptual Design, result of vote and team formation</td>
</tr>
<tr>
<td>Monday 28th November</td>
<td>Development of business plan using Osterwalder’s Business Model Canvas and a short consultancy report on another team’s work (deadline for submission of draft of Final Concept Proposal and consultancy report: 6pm Monday 13th February)</td>
</tr>
<tr>
<td>Monday 5th December</td>
<td>Feedback and revisions to Final Concept Proposal</td>
</tr>
<tr>
<td>Monday 12th December</td>
<td>Development of Implementation Package and supporting media materials (deadline for submission of Final Concept Proposal and Implementation Package: 6pm Monday 20th March)</td>
</tr>
</tbody>
</table>

**Common Core**

**Project Focus**
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at least fifteen out of the twenty sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day
3. I will arrive at the sessions promptly and understand that being late is discourteous to the rest of my group
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity

Group Working
5. I will be a productive member of my project group
6. I will participate actively during the sessions
7. I will undertake independent research and idea development between sessions and will share this with my group via Blackboard Learn

Independent Learning
8. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my group

Assessment
10. I understand that I am being continually assessed during this course and that I must complete all the elements of assessment in order to pass the course
11. I understand that for group submissions, I must complete a group contribution form that details my contribution to the submission
12. I understand that formal assessment of my project will include the production of a 10 page final concept proposal, the final version of which will be submitted to the Engineers Without Borders national competition

Signed ________________________________ Date __________________
Assessment
Your assessment for this course is composed of four elements:

- Case Study Analysis – written report (20%)
- Conceptual Designs (15%)
- Final Concept Proposal – including written report (50%)
- Implementation Package (15%)

Your Case Study Analysis
Your case study analysis should include:

1. An overview rich picture
2. Three ‘world view’ rich pictures
3. A ‘purposeful activity’ rich picture
4. 1000-2000 word summary, including:
   4.1. An overview of the community you are studying.
   4.2. A reflection on the use of the rich pictures and how this has allowed you to develop an understanding of the community.
   4.3. Analysis of where you think there might be opportunities for intervention.

The rich pictures can be photographed and uploaded individually, or copied and pasted into your document. They should be hand drawn.

Conceptual Designs
You should develop your conceptual designs in your sketchbook – you should try to fill the book with as many ideas as possible. Remember it doesn’t matter whether the designs are practical or would work in the real world. The more ideas you get down on paper, the more creative your final choice will be. You will submit the sketchbook as part of your assessment.

Your best design series (three linked designs) should be submitted online via Blackboard Learn. All students will vote over the Christmas break for the designs that they think are the best to take forward and form part of a final business model and plan.

In addition, the ‘Pressure Cooker Challenge’ task will constitute a small part of this assessment. By focusing on real life business models, the task is designed to help you design innovative business models for the community. The challenge will take place in class on Week 6 and will involve the analysis of business models provided by your tutor on the day. No preparation is necessary.
Your Final Concept Proposal
Your final concept proposal should contain:

1. Evidence of your case study analysis (at least one of your rich pictures and a commentary – you may need to redraw this as you will now be working in a different team) describing the value of the rich picture in helping you understand more about the community
2. Your design question (and a short commentary about the evolution of the question throughout the project, or any difficulty you had defining the design question)
3. The business model that you are employing to provide a solution represented by Osterwalder’s Business Model Canvas
4. A proposed business plan

Consultancy Reports
You will be also asked to provide a short consultancy report on the work of another team and also a short response to consultancy reports on your work. This is designed to encourage constructive peer assessment and will also constitute a very small portion of the marks for this assessment.

Your Implementation Package
Your implementation package should be designed for the community in Lobitos. You should create a multimedia package that describes your design and provides information about implementation such as training requirements, funding and maintenance.

Your package might include:

• a filmed presentation
• slides
• animation
• graphics
• voice over
• pamphlets and posters
• film

Resit Policy

<table>
<thead>
<tr>
<th>Group Written Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>- If a student fails to submit or participate in the group assignment a mark of 0 is awarded and this is weighted in the final grade</td>
</tr>
<tr>
<td>- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass</td>
</tr>
</tbody>
</table>

| Individual Written Assignments |
- If a student fails to submit their individual assignment, they receive a mark of 0 and this is weighted in their final grade
- If a student fails their individual assignment, they will be offered the chance to resubmit their assignment to increase their course mark to a capped pass

**Group Presentation**

- If a student fails to participate in the group presentation due to extenuating circumstances (i.e. due to timetabling issues with field trips) the student is offered assessment with a viva
- If a student fails to participate in the group presentation otherwise, a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group presentation, they will be offered a viva to increase their course mark to a capped pass

**Group Multimedia Project**

- If a student fails to submit or participate in the group project a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass
HGC26 Design for Local Sustainability

This course offers you the chance to explore the importance of local sustainability alongside the idea of international development. You will perform a detailed case study analysis of the South Kensington campus, identifying areas that could be targeted for improved sustainability, the key stakeholders and their varied perspectives on the problems.

You will then work in teams to design a practical solution to an issue that you have identified as being critical for our sustainability. You will begin by producing multiple conceptual designs before voting to decide on the strongest ideas to take forward to technical specification and finally presentation to Estates and Facilities. If your ideas are good, and you can demonstrate favourable cost-benefit analysis, your solutions may well be implemented here on campus.

You will have a large amount of freedom to focus on the aspects of sustainability that you are most interested in. In response to student feedback, all the Global Challenges second year courses will be taught collaboratively - meaning that you will be working alongside other students who are studying the same issues, but from different perspectives.

Learning Objectives

On successful completion of the course you will:

- Understand the complexity of trying to define development and sustainability; and develop and justify the use of your own definition
- Understand and apply soft systems methodology to analyse a complex problematical situation
- Use rich pictures to further your own understanding and to communicate your analysis with others
- Understand local sustainability issues and how they might be tackled
- Develop a case study of the South Kensington campus and investigate a potential campaign or strategy to improve sustainability
- Present a mini-business plan for this intervention using Osterwalder’s Business Model Canvas
- Analyse the potential difficulties with implementing the idea in the real world setting
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Common Core</th>
<th>Project Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday 10th October</td>
<td>Defining international development, poverty and sustainability; introduction to boundary critique and soft systems methodology</td>
<td></td>
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<tr>
<td>Monday 17th October</td>
<td>Preparation of Case Study Analysis (deadline for submission of Case Study Analysis: 6pm Monday 7th November)</td>
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<td>Monday 24th October</td>
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<td>Monday 31st October</td>
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<td>Monday 5th December</td>
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<td>Monday 12th December</td>
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<td>Monday 16th January</td>
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<td>Monday 23rd January</td>
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<tr>
<td>Monday 30th January</td>
<td>Final Concept Proposal with business case presentation and a short consultancy report on another team’s work (deadline for submission of draft Final Concept Proposal and the consultancy report: 6pm Monday 13th February)</td>
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<tr>
<td>Monday 6th February</td>
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<tr>
<td>Monday 13th February</td>
<td>Feedback on Conceptual Designs, result of vote and team formation</td>
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<tr>
<td>Monday 20th February</td>
<td>Feedback and revisions to Final Concept Proposal</td>
<td></td>
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<tr>
<td>Monday 27th February</td>
<td>Development of Implementation Plan and supporting media materials (deadline for submission of Final Concept Proposal and Implementation Package: 6pm Monday 20th March)</td>
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<td>Monday 6th March</td>
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<td>Monday 20th March</td>
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</table>
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at least fifteen out of the twenty sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day
3. I will arrive at the sessions promptly and understand that being late is discourteous to the rest of my group
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity

Group Working
5. I will be a productive member of my project group
6. I will participate actively during the sessions
7. I will undertake independent research and idea development between sessions and will share this with my group via Blackboard Learn

Independent Learning
8. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my group

Assessment
10. I understand that I am being continually assessed during this course and that I must complete all the elements of assessment in order to pass the course
11. I understand that for group submissions, I must complete a group contribution form that details my contribution to the submission
12. I understand that formal assessment of my project will include the production of a 10 page ‘final concept proposal’, the final version of which will be submitted to Estates and Facilities

Signed ________________________________ Date _________________
Assessment

Your assessment for this course is composed of four elements:

- Case Study Analysis – written report (20%)
- Conceptual Designs (15%)
- Final Concept Proposal – including written report and business case (50%)
- Implementation Package (15%)

Your Case Study Analysis

Your case study analysis should include:

1. An overview rich picture
2. Three ‘world view’ rich pictures
3. A ‘purposeful activity’ rich picture
4. 1000-2000 word summary, including:
   4.1. An overview of the community you are studying.
   4.2. A reflection on the use of the rich pictures and how this has allowed you to develop an understanding of the community.
   4.3. Analysis of where you think there might be opportunities for intervention.

The rich pictures can be photographed and uploaded individually, or copied and pasted into your document. They should be hand drawn.

Conceptual Designs

You should develop your conceptual designs for sustainability opportunities in your sketchbook. Try to fill the book with as many ideas as possible. Remember that it doesn’t matter whether the designs are practical or would work in the real world. The more ideas you get down on paper, the more creative your final choice will be. You will submit the sketchbook as part of your assessment.

Your best design series (three linked designs) should be submitted online via Blackboard Learn. All students will vote over the Christmas break for the designs that they think are the best to take forward.

In addition, a ‘Pressure Cooker Challenge’ task will constitute a very small part of this assessment. The task is designed to help you think innovatively with your colleagues and it will take place in class on Week 6 before you start sketching. The Challenge will involve the use of creativity tools provided by your tutor on the day. No preparation is necessary.
Your Final Concept Proposal
Your final concept proposal should contain:

1. Your case study analysis of the South Kensington Campus
2. A summary of your exploration of sustainability opportunities
3. Your final concept proposal
4. A cost-benefit analysis/business case for implementation of your concept

Consultancy Reports
You will be also asked to provide a short consultancy report on the work of another team and also a short response to consultancy reports on your work. This is designed to encourage constructive peer assessment but will also constitute a very small portion of the marks for this assessment.

Your Implementation Package
Your implementation package should be designed for presentation to Estates and Facilities. You should create a multimedia package that describes your concept and provides information about implementation such as training requirements, funding and maintenance.

Your package might include:

- a filmed presentation
- slides
- animation
- graphics
- voice over
- pamphlets and posters
- film

Resit Policy

Group Written Assignments

- If a student fails to submit or participate in the group assignment a mark of 0 is awarded and this is weighted in the final grade
- If a student fails their group project, they will be offered a viva to increase their course mark to a capped pass

Individual Written Assignments

- If a student fails to submit their individual assignment, they receive a mark of 0 and this is weighted in their final grade
- If a student fails their individual assignment, they will be offered the chance to resubmit their assignment to increase their course mark to a capped pass
<table>
<thead>
<tr>
<th>Group Presentation</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>Group Multimedia Project</th>
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<tbody>
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</tr>
</tbody>
</table>
HGC31 Lessons From History
This course offers you the opportunity to learn about significant global events such as natural disasters, conflicts and humanitarian crises from a historical, cultural and scientific perspective.

Organised as a team-based learning programme, you will study set materials and draw key learning points from each historical case study. You will then work in teams to apply this learning to the modern world, specifically thinking about policies for future disaster mitigation and managing global challenges.

Learning Objectives
On successful completion of the course you will have:

- a systematic knowledge and critical understanding of each historical event covered
- synthesised a set of key learning points from each historical event and its legacy
- applied these to current approaches to managing global challenges, suggesting areas where improvements could be made
- identified areas for further self-directed study and developed considered insights using inputs from a range of sources and disciplines to construct a critical review of our attempts to manage the world in which we live
- engaged with the ethical, social, economic and political aspects of each event analysed
- planned, monitored and evaluated your own learning, and developed methods of accountability within your team
## Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday 13(^{th}) October</td>
<td>Introduction</td>
</tr>
<tr>
<td>Thursday 20(^{th}) October</td>
<td>Cycle One</td>
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<tr>
<td>Thursday 27(^{th}) October</td>
<td>Cycle Two</td>
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<tr>
<td>Thursday 3(^{rd}) November</td>
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<tr>
<td>Thursday 10(^{th}) November</td>
<td></td>
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<tr>
<td>Thursday 17(^{th}) November</td>
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<tr>
<td>Thursday 24(^{th}) November</td>
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<tr>
<td>Thursday 1(^{st}) December</td>
<td>Cycle Three</td>
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<td>Thursday 8(^{th}) December</td>
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<td>Thursday 15(^{th}) December</td>
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<td>Thursday 19(^{th}) January</td>
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<tr>
<td>Thursday 26(^{th}) January</td>
<td>Cycle Four</td>
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<tr>
<td>Thursday 2(^{nd}) February</td>
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<tr>
<td>Thursday 9(^{th}) February</td>
<td>Cycle Five</td>
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<td>Thursday 16(^{th}) February</td>
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<td>Thursday 23(^{rd}) February</td>
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<tr>
<td>Thursday 2(^{nd}) March</td>
<td>Cycle Six</td>
</tr>
<tr>
<td>Thursday 9(^{th}) March</td>
<td></td>
</tr>
<tr>
<td>Thursday 16(^{th}) March</td>
<td>Final Assessment</td>
</tr>
<tr>
<td>Thursday 23(^{rd}) March</td>
<td></td>
</tr>
</tbody>
</table>
Contract of Responsibility

Attendance
1. I will try to attend every session of this course and understand that I must attend at least fifteen out of the twenty sessions in order to pass
2. If I am unavoidably absent, I will inform my tutor of the reason before the session, or at the latest by midday on the following day
3. I will arrive at the sessions promptly and understand that being late is discourteous to the rest of my group
4. I will discuss any problems with attendance or punctuality with the course leader at the earliest opportunity

Group Working
5. I will be a productive member of my project group
6. I will participate actively during the sessions
7. I will undertake independent research and idea development between sessions and will share this with my group via Blackboard Learn

Independent Learning
8. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme

Blackboard Learn
9. I will use Blackboard Learn to continue and document my independent learning and to collaborate and demonstrate good team working with other members of my group

Assessment
10. I understand that I am being continually assessed during this course and that I must complete all the elements of assessment in order to pass the course
11. I understand that for group submissions, I must complete a group contribution form that details my contribution to the submission
12. I understand that formal assessment of my project will include the production of a 10 page design portfolio, the final version of which will be submitted to the Engineers Without Borders national competition

Signed _______________________________ Date __________________________
Assessment
Your assessment for this course is composed of four elements:

- Team based learning assignments - tests of comprehension of core material (20%)
- Application exercises – short answer questions applying key learning points to contemporary issues and strategy (40%)
- Essay – integrating learning from several of the events covered to create a plan for future disaster management (40%)

Team Based Learning Process
Each cycle of this team based learning course takes place over three weeks. In the first week we complete the preparatory exercises. In the second week we complete the iRAT, tRAT and clarification and extension components. In the final week we complete the tAPP. The whole process sounds a bit complicated, but actually it is really simple. Once we’ve all done it once, it will make much more sense.

Preparatory Exercises
Large group and study team activities to introduce the events that we will be studying, and to define what we need to learn for each event; portfolio of materials presented

iRAT
Individual Readiness Assurance Test – 10 multiple choice questions completed on paper under exam conditions at the start of the session – tests your understanding of the materials provided

tRAT
Team Readiness Assurance Test – repeat the test in your study groups – negotiate the correct answers and use the scratch card to see if you are right or not
Clarification and Extension
Clarification and Extension – check the answers to the tests, and then develop some key questions about the topic – these will be answered in class the next week

**tAPP**
Team Application Exercise – research the answer to your application question – you will need to provide five pieces of evidence to support your answer – this must be uploaded to Blackboard Learn by the team secretary by 6pm of the third session in the cycle

**Mark Allocations**
Marks from your iRAT and tRAT as well as your tAPP will count towards your final grade. You will be given lots of information and feedback to help you with these assignments in class.

**Resit Policy**

<table>
<thead>
<tr>
<th><strong>iRAT</strong></th>
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<tbody>
<tr>
<td>- If a student does not complete an iRAT due to extenuating circumstances, the individual iRAT will be exempted from the weighting of their final grade</td>
</tr>
<tr>
<td>- If a student does not complete an iRAT otherwise, they will be awarded 0 marks and this will be weighted in their final grade</td>
</tr>
<tr>
<td>- If a student fails an individual iRAT this will be weighted in their final grade</td>
</tr>
<tr>
<td>- If a student receives a fail grade across all iRATs, this will be weighted in their final grade</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>tRAT</strong></th>
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<tbody>
<tr>
<td>- If a student does not complete a tRAT due to extenuating circumstances, the individual tRAT will be exempted from the weighting of their final grade</td>
</tr>
<tr>
<td>- If a student does not complete a tRAT they will be awarded 0 marks and this will be weighted in their final grade</td>
</tr>
<tr>
<td>- If a student fails an individual tRAT this will be weighted in their final grade</td>
</tr>
<tr>
<td>- If a student receives a fail grade across all tRATs, this will be weighted in their final grade</td>
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<thead>
<tr>
<th><strong>tAPP</strong></th>
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<tbody>
<tr>
<td>- If a student does not complete a tAPP due to extenuating circumstances, the individual tAPP will be exempted from the weighting of their final grade</td>
</tr>
<tr>
<td>- If a student does not complete a tAPP they will be awarded 0 marks and this will be weighted in their final grade</td>
</tr>
<tr>
<td>If a student fails an individual tAPP this will be weighted in their final grade</td>
</tr>
<tr>
<td>If a student receives a fail grade across all tAPPs, this will be weighted in their final grade</td>
</tr>
</tbody>
</table>

| If a student does not submit their individual essay, they receive 0 marks and this is weighted in their final grade |
| If a student fails their individual essay, they will be offered the opportunity to resubmit the essay for an increased course mark capped at a pass |
**HGC32 Independent Project**

This course allows you to follow up your own interests in human sustainable development or environmental issues with an extended independent project of your own design.

The Global Challenges Independent Project is ideal if you have a particular interest in global issues and have successfully completed a Level 5 Global Challenges course, or a relevant internship or summer placement. The module consists of independent study, supervised by the Global Challenges Field Leader and/or another relevant member of staff or external expert, who will meet with you on a regular basis to discuss progress.

The topic and design of the project must be agreed with the Global Challenges Field Leader and should be of sufficient scope to allow you to complete an in-depth analysis of your chosen area. Prospective candidates must supply a proposal that details the scope, the research questions and the timetable that sets clear goals for monitoring progress.

**Learning Objectives**

On successful completion of the course you will have:

- demonstrated systematic knowledge and critical understanding of your chosen topic
- selected and used accurately established techniques of analysis and enquiry
- synthesised, evaluated critically and challenged information, arguments and assumptions from a range of sources
- recognised the potential uncertainty, ambiguity and limits of knowledge in the chosen subject area
- communicated complex information, arguments and ideas effectively and appropriately to the subject, purpose and audience
- understood the importance of context for the effective interpretation and analysis of information within a particular subject discipline
- as an independent learner planned, monitored and evaluated their own learning and sought ways to improve performance
## Class Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Thursday 13th October</td>
<td>Independent learning – you should schedule 4-6 meetings with your supervisor over the course of the two terms. It is up to you to manage your time and your workload. You might want to set progress goals and deadlines with your supervisor to help keep you on track.</td>
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<tr>
<td>Thursday 20th October</td>
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<tr>
<td>Thursday 27th October</td>
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<td>Thursday 3rd November</td>
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<td>Thursday 10th November</td>
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<td>Thursday 17th November</td>
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<td>Thursday 24th November</td>
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<td>Thursday 1st December</td>
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<td>Thursday 8th December</td>
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<td>Thursday 15th December</td>
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<td>Thursday 19th January</td>
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<td>Thursday 26th January</td>
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<td>Thursday 2nd February</td>
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<td>Thursday 9th February</td>
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<td>Thursday 16th February</td>
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<td>Thursday 23rd February</td>
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<td>Thursday 2nd March</td>
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<td>Thursday 9th March</td>
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<tr>
<td>Thursday 16th March</td>
<td></td>
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<tr>
<td>Thursday 23rd March</td>
<td></td>
</tr>
</tbody>
</table>

**Final Deadline for Submission: 6pm Thursday 23rd March 2017**
Contract of Responsibility

Attendance
1. I understand that I am responsible for scheduling my own learning during this course.
2. I recognise that I have the Imperial Horizons protected timetable slot (Thursday 4-6pm) as a dedicated time when I can work on my project.
3. It is my responsibility to arrange supervision meetings with my supervisor.
4. If I have arranged a meeting I must attend in a timely manner, or give at least two days’ notice if I need to reschedule.

Independent Learning
5. I understand that this project module is an independent learning module - I am responsible for my learning and development during this programme.

Blackboard Learn
6. I will use Blackboard Learn to continue and document my independent learning and to share my progress my supervisor and with the other students undertaking an independent project.

Assessment
7. I understand that I must design my own assessment at the start of the course and that it should be equivalent to a 7000-10000 word essay.
8. I understand that I must submit an assessment plan for review.
9. I must set realistic deadlines and recognise that once the assessment plan is submitted that these deadlines are final and binding.
10. I understand that my assessment plan and deadlines must be approved by the field leader for Global Challenges before I commence work.
11. I understand that my project will be marked by my supervisor and a second marker.

Signed ________________________________ Date __________________
Assessment
Your assessment will comprise:

- Course Performance (10%) – professionalism, time management, appropriate response to feedback
- Independent Project Submission (90%) - 5000-7000 word analytical essay

Resit Policy
Individual Project Assessment

- If a student does not submit their assessment, they receive 0 marks and this is weighted in their final grade
- If a student fails their assessment, they will be offered the opportunity to resubmit the assessment for an increased course mark capped at a pass
Missed Assessment Due to Mitigating Circumstances

Imperial College has very strict rules about the circumstances in which missing an assessment is unavoidable, and in which case special arrangements will be made to prevent you missing out on your opportunity to obtain a grade.

The official form that you must complete can be found on the following two pages.
REQUEST FOR MITIGATION FORM

To be used for examinations and major pieces of coursework and projects.

For consideration of mitigating circumstances for an assessment this form must be submitted within 5 working days of the examination or coursework submission date to the Field Leader for Global Challenges.

The College Health Centre can only certify illness for absence from College lasting more than one week or absence from an examination. They cannot certify an illness if a student has not been seen at the Health Centre during the illness. Likewise, the College Student Counselling Service can only provide a letter on request by a student who is already attending counselling. The College Disability Advisory Service can only help students to obtain appropriate evidence of disability prior to examinations taking place and are not able to certify for absences due to disability.

Personal Details

<table>
<thead>
<tr>
<th>Name:</th>
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</thead>
<tbody>
<tr>
<td>CID:</td>
</tr>
<tr>
<td>Department:</td>
</tr>
<tr>
<td>Programme of Study:</td>
</tr>
<tr>
<td>Year of Study:</td>
</tr>
</tbody>
</table>

Nature of Mitigating Circumstances

(Please tick appropriate box)

| Own illness |
| Family illness/bereavement |
| Accident |
| Victim of crime |
### Other unforeseen circumstances

<table>
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<tr>
<th>Please give details of the nature of your mitigating circumstances including dates:</th>
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</thead>
</table>

Documentation supplied

Acceptable Supporting Documentation Includes:

- Medical Certificate or doctor’s letter (if from a UK based practitioner, they should be GMC registered)
- Email/letter from Imperial College Health Centre
- Hospital Admission note
- Death Certificate
- Police Crime Number/report
- Letter from counsellor

Please note that the information on this form will remain confidential and will only be viewed by the Field Leader in the first instance. If there is a need to share the information with your department or with the Board of Examiners, you will be informed of this prior to sending the information. The Field Leader will be able to make a recommendation to the Board of Examiners regarding your circumstances.

I wish for the appropriate Board of Examiners to take into account my mitigating circumstances for the assessments listed above. I declare that the information I have given to be true to the best of my knowledge and understand that false claims for mitigation are a serious examinations offence.

Signed (student).................................................................

Date:.................

Print Name..................................................................................

Signed (member of staff to confirm receipt).........................

Date:......................

Print Name..................................................................................
Academic Integrity and Plagiarism

The concept of academic integrity is fundamental to your student experience at Imperial so as to ensure that your academic achievements are a true reflection of your abilities.

Academic integrity means conducting all aspects of your academic life in a professional manner. It includes:

- Taking full responsibility for your own work
- Following accepted conventions, rules and laws when presenting your own work
- Fully acknowledging the work of others wherever it has contributed to your own work, thus avoiding plagiarism
- Ensuring that your own work is reported honestly and that you follow the ethical conventions and requirements appropriate to your discipline
- Avoiding actions which are intended to give you an unfair advantage over others
- Respecting the rights of your fellow students, your teachers and other scholars
- Behaving with respect and courtesy when debating with others whether or not you agree with them
- Maintaining standards of conduct appropriate to a practitioner in your discipline
- Supporting others in their efforts to behave with academic integrity

You are reminded that all work submitted as part of the requirements for any examination and assessment (including coursework) must be expressed in your own words and incorporate your own ideas and judgements.

Plagiarism, which is the presentation of another person's thoughts, words or images and diagrams as though they were your own and which is a form of cheating, must be avoided, with particular care in coursework, essays, reports and projects. You are encouraged to read and criticise the work of others as much as possible, and you are expected to incorporate this into your thinking and in your coursework and assessments. But you must be sure to acknowledge and identify your sources.

Direct quotations from the published or unpublished work of others, whether from the internet or from any other source, must always be clearly identified as such by the use of quotation marks.

A full reference to their source must be provided in the proper form. Remember that a series of short quotations from several different sources, if not clearly identified as such, constitutes plagiarism just as much as a single unacknowledged long quotation from a single source. Equally, if you summarise another person's ideas or judgements, figures, diagrams or software, you must refer to that person in your text, and include the work referred to in your bibliography.

The direct and unacknowledged repetition of your own work which has already been submitted for assessment can constitute self-plagiarism.

Where group work is submitted, this should be presented and referenced, with individual contributions recorded.
The use of the work of another student, past or present, also constitutes plagiarism. Where work is used without the consent of that student, this will normally be regarded as a major offence of plagiarism.

Giving your work to another student to use (other than in a group assessment) may also constitute an offence.

The College may submit your work to an external plagiarism detection service, and by registering with the College you are automatically giving your consent for any of your work to be submitted to such a service.

The College will investigate all instances where an examination or assessment offence is reported and apply appropriate penalties to students who are found guilty. These penalties include a mark of zero for the assessment in which the examination offence occurred or a mark of zero for all the assessments in that year or exclusion from all future examinations of the University.

Finding out more
Further help with avoiding plagiarism and demonstrating good academic practice can be found in the online library resource Olivia and in the Imperial Success Guide. Don’t forget that your tutors and course leader can also give you feedback and advice about this.