

Schumacher College

2016 - 2017

Teaching, Learning and Assessment Handbook

HOLISTIC SCIENCE

If you require any part of this Student Handbook in larger print, or an alternative format, please contact:

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Schumacher
College

IN
PARTNERSHIP
WITH
PLYMOUTH
UNIVERSITY

Dartington

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Dear MSc/PG Cert student,

We are delighted to welcome you to the 19th year of the MSc Holistic Science here at Schumacher College. You are now part of an extensive network of over 180 MSc graduates all over the world who would love to hear from you should you ever need their support or assistance with your own journey into the new frontiers you are about to explore.

The roots of the MSc go back to the early days of the college when many participants asked whether their learning here could receive academic accreditation. The nearby Plymouth University knew about us and were very excited to embark on this collaboration, which worked extremely well with many very good Masters level projects completed. After a few years we were ready to expand this collaboration into a fully blown MSc when the renowned biologist, Professor Brian Goodwin, came to work at the college after his retirement from the Open University.

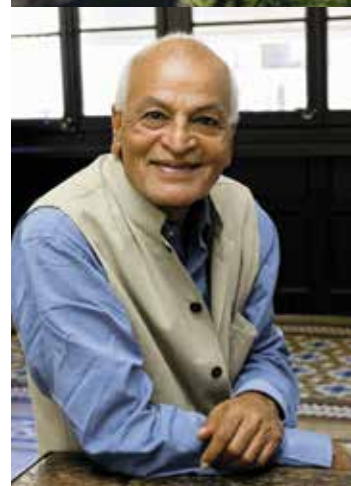
Brian's vision had for some time been to create an MSc that integrated intuitive and rational ways of knowing in exploring a science of qualities rather than just quantities, and Schumacher College provided fertile ground for the realisation of his dream. After a year of preparation, Brian and Stephan (a co-founder of the College who was the tutor for the short course credits), along with a distinguished cast of visiting teachers, launched the course in 1998 with only two students. Philip Franses has taken this lineage on, first as student and now teaching the transformative potential of holistic science with Stephan. The course has gone from strength to strength since those early days, with 16 students in last year's cohort.

Just like a living organism, the MSc develops and evolves. This year we will once again explore new modes of participatory learning, with Professor Patricia Shaw, who has had a very long association with the College and with the MSc and a host of visiting teachers. This year also sees the fourth year of a part-time route for the MSc, and also of the Postgraduate Certificate (PG Cert) in Holistic Science, which covers the core modules in the first term.

The MSc and the PG Cert in Holistic Science are all about exploring the meaning of wholeness together as a community of learners and as fellow travellers within this mystery-filled universe. May your journey be rich and fulfilling. We look forwards to our time together, and warmly welcome you into the college community.

Stephan Harding and Philip Franses

HOLISTIC
SCIENCE



B. Programme Specification

This programme has been designed to equip you with the skills and knowledge base required to work in your chosen specialism or other graduate opportunities. It is also a platform from which you can undertake additional vocational and academic qualifications.

This Teaching, Learning and Assessment Handbook contains important information including:

- Who will be teaching and providing support to you
- Details of your programme of study and assessment including feedback.
- Course resources
- Submission details including hand-in dates
- Dissertation guidelines and information on ethical approval
- Ethical Approval application form

Note: the information in this handbook should be read in conjunction with the current edition of the Student College and University Handbook 2016/17 and Programme Quality Handbook 2016/17. You will receive both electronic copies of both. You will receive your own hard copy of the College and University Handbook. A hard copy of the Programme Quality Handbook is located in your classroom for reference. All handbooks can be accessed on the College Virtual Learning Environment (VLE). The College University Handbook, and Teaching Learning and Assessment Handbook can also be accessed on the College website.

The Student College and University Handbook contains student support based information on issues such as finance and studying in H.E along with the University's Student Handbook available here: <https://www.plymouth.ac.uk/your-university/governance/student-handbook> and your Programme Quality Handbook available on the VLE.

Introduction to the Programme

Western scientific method is dominated by specialisation in disciplines and by “reductionism” – the idea that natural phenomena can be explained and understood in terms of their smallest parts. Specialisation and reductionism have been highly successful and have led to a great many major scientific breakthroughs. But the dominance of this approach in science is now being called into question.

Schumacher College's MSc Holistic Science explores new trans-disciplinary methodologies that are gaining success in explaining natural systems. These recognize that complex systems have “emergent properties” that describe their characteristics as wholes and that these properties are conditioned - but not determined - by the system's constituent parts.

The MSc programme offers methodologies that go beyond reductionism in understanding the dynamics of whole systems, which are explored at all levels from individual organisms to organizations, and from ecosystems to the Earth. Integrating qualitative and quantitative approaches - which include, for example, chaos and complexity theories, computer modelling, intuitive perception and co-operative inquiry - students develop a holistic understanding of these systems and learn to work with them creatively.

Why is holistic science important?

A reductionist explanation of nature is not only incomplete; it can also be dangerous. It leads us to assume that by analysing the “mechanical” workings of nature we can fully understand, predict and hence manipulate it. In genetic engineering, for example, conventional scientists believe that genes are of primary importance in determining all the characteristics and behaviour of organisms. Holistic science recognises that a methodology that ignores the ecological context, complexity, emergent properties and intrinsic value of life, cannot capture the whole story.

“The new paradigm may be called a holistic world view, seeing the world as an integrated whole rather than a disassociated collection of parts. It may also be called an ecological view, if the term “ecological” is used in a much broader and deeper sense than usual. Deeper ecological awareness recognises the fundamental interconnectedness of all phenomena and the fact that, as individuals and societies, we are all embedded in (and ultimately dependent on) the cyclical processes of nature.”

Fritjof Capra, The Web of Life

The Holistic Science programme advocates a participatory science of qualities, values and interactions, which underpins an ecological world view. This approach is more capable than traditional science of relating to the problems of environmental degradation, spiritual decline and collapsing communities that face humanity today.

Holistic thinking is already revolutionising many aspects of science. It is generating increasing interest from scientists in fields such as physics, earth system science, ecology, evolutionary biology, management and economics, health studies and design, and is especially significant to those concerned with issues relating to sustainability. This is the first Master’s programme to present a coherent methodology of holistic inquiry, providing a rigorous and ethical framework for a mature science.

As a graduate of the MSc Holistic Science, you will be able to take a broad, integrated, systemic approach to, for example, environmental management, education for sustainability, biological research, business management, or health issues. You will be equipped with skills ideally suited to self-employment or professional consultancies.



2.0 Distinctive Features of your programme

2.1 Programme Coordinator

Dr Stephan Harding FLS

Stephan coordinates the MSc Holistic Science, and will teach on the Economics for Transition programme. Stephan was born in Venezuela in 1953 and came to England at the age of six. Since childhood Stephan has had a deep fascination with the natural world, and his scientific cast of mind led him to do a degree in Zoology at the University of Durham and then a doctorate on the behavioural ecology of the Muntjac Deer at Oxford University. He has been involved in ecological research, expedition and teaching in Zimbabwe, Peru, Venezuela and Costa Rica.

Stephan became a founder member of Schumacher College in 1990. The College's first teacher was James Lovelock, with whom Stephan has maintained a long-lasting friendship and scientific collaboration that culminated in their joint appointment as chair holders of the Arne Naess Chair in Global Justice and the Environment at the University of Oslo. Stephan lives on the College campus with his wife Julia Ponsonby and their son Oscar, and is the author of *Animate Earth: Science, Intuition and Gaia* published in 2006

2.2 Module Leaders

The Module Leaders for the 2016-17 Academic year are:

Core

SCH5401: Science with Qualities – Stephan Harding

SCH5402: Chaos and Complexity – Philip Franses

SCH5403: The Living Earth – Stephan Harding

Electives

SCH5406: Leading In the Midst of Complexity – Tim Crabtree

SCH5409: Economics and Development – Jonathan Dawson

SCH5405: Contemporary Issues in Holistic Science – Stephan Harding

Dissertation

SCH5404: Holistic Science Dissertation – Stephan Harding

2.3 Programme Partners

The MSc Holistic Science is offered in association with Plymouth University This collaborative structure provides students with a unique opportunity to study with leading thinkers and academics, activists and practitioners in the field from a range of different perspectives.

Schumacher College <http://www.schumachercollege.org.uk/>

Schumacher College has 25 years of experience in transformational education. The MSc Holistic Science was established 19 years ago by Professor Brian Goodwin and Dr Stephan Harding as an extension to the College's internationally renowned short course programme.

Stephan Harding will lead and coordinate the programme from Schumacher College. Philip Franses and Stephan Harding teach on the core and some of the elective modules along with a wide range of visiting teachers.

Plymouth University <http://www5.plymouth.ac.uk>

The postgraduate programme in Holistic Science is accredited by Plymouth University.

Founded in 1862 as a school of navigation and now the 15th largest university in the UK, Plymouth is one of the leading modern universities, ranked in the top 60 internationally under the age of 50 by Times Higher Education. Twice awarded the Queen's Anniversary Prize for Higher Education, it

has won numerous accolades in respect of its teaching and its research. The University has one of the highest number of National Teaching Fellows of any UK university, is ranked 19th in the UK and in the top 100 globally for research quality (2015 CWTS Leiden Rankings), with two-thirds of its research ranked as world-leading or internationally excellent (2014 Research Excellence Framework). It was also the first university in the world to receive the Social Enterprise Mark.

Schumacher College is part of Academic Partnerships within Plymouth University, which houses around 13,000 students studying across the region and overseas. Academic Partnerships works closely to support the Institution in development and review of the programme to ensure the highest quality of teaching and learning is offered. The majority of provision delivered is at HE Level 4, 5 and 6 comprising of HNCs, HNDs, Foundation Degrees and Bachelors Awards, however some masters-level study is also delivered.

Students and staff at Plymouth University have jointly developed an agreement that sets out key principles that underpin this partnership - "Students as Partners" - which can be found: <https://www.plymouth.ac.uk/student-life/students-as-partners>.

Plymouth University provides support and supervision for the Holistic Science dissertation that forms part of the MSc Holistic Science programme. This includes guidance on choosing and planning your dissertation; optional workshops on research methods related to the dissertation; and identifies suitable supervisors from within the University, as appropriate.

Professor Michael Punt is the Plymouth University Link Tutor for the MSc in Holistic Science. (Professor Punt's profile can be found in section 2.4.1 of this handbook.)

2.4 Course Contacts

2.4.1 Teachers

Schumacher College Faculty

Dr Stephan Harding FLS – Programme Coordinator

Stephan coordinates the MSc Holistic Science, and will teach on the Economics for Transition programme. Stephan was born in Venezuela in 1953 and came to England at the age of six. Since childhood Stephan has had a deep fascination with the natural world, and his scientific cast of mind led him to do a degree in Zoology at the University of Durham and then a doctorate on the behavioural ecology of the Muntjac Deer at Oxford University. He has been involved in ecological research, expedition and teaching in Zimbabwe, Peru, Venezuela and Costa Rica.

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Philip Franses – In September 2009, Philip joined the postgraduate programme in Holistic Science Faculty as teacher of complexity. Born in 1958 in England, Philip studied mathematics at New College Oxford from 1976 to 1980. Academia's dull explanation of the world inspired Philip on a counter-journey into the depths of experience, travelling and a re-sensitisation to quality.

In 2005, after a fifteen-year career designing intelligent software, culminating in a programme now used in The Netherlands by all Dutch courts, Philip had a chance encounter with Satish Kumar and was moved to come to Schumacher as a postgraduate student. Here he was especially inspired by the work and scientific approaches of Goethean scientist Henri Bortoft, the physicist Basil Hiley and the late Brian Goodwin, professor of biology.

With Basil and Satish Kumar, Philip began the forum Process and Pilgrimage, inaugurated in 2009 at Birkbeck College, which has now widened to a world-wide exploration of contemporary issues. From 2006 Philip worked with Brian on a computer model exploring the interpretation of meaning within the DNA code. Taking up Brian's work on complexity and chaos theory has also led to an exciting partnership with ABOCA herbal health company, restoring the whole herb as the qualitative source of health. Philip also is founding editor of the Holistic Science Journal. He is the author of *Time, Light and the Dice of Creation: Through Paradox in Physics to a New Order* (2015).

Jonathan Dawson

Jonathan is a sustainability educator and activist formerly based at the Findhorn Foundation in Scotland, where he taught human ecology and applied sustainability studies. He is a recent President of the Global Ecovillage Network and has published widely both on Eco villages and other sustainable community initiatives.

Jonathan has spent much of the last 20 years involved in development work in Africa and South Asia, as a researcher, author, project manager and consultant, working primarily in the field of small enterprise and community economic development. He has worked for clients as diverse as the World Bank, the United Nations and numerous bilateral development agencies and NGOs, including the organisation created by E.F. Schumacher, Intermediate Technology Development Group (recently renamed Practical Action).

Tim Crabtree

Tim has been involved in "new economics" for 30 years, after studying economics at Oxford University and then working for the New Economics Foundation for 5 years. He has experience in policy development, local economic development and business advice, and was the co-founder of a number of a successful social enterprises including the Wessex Reinvestment Trust group and Dorset-based Local Food Links Ltd – where he was responsible for developing farmers' markets, food festivals, community gardening projects, a specialist workspace (the Centre for Local Food), a vocational training programme for young people and a school meals catering service, employing 25 people, which now supplies 33 schools with a turnover in excess of £1 million p.a.

After stepping down as chief executive of Local Food Links, Tim then worked for Cardiff University, researching the future direction of the community food sector. He continues to work with one of the Wessex Reinvestment Trust social enterprises - Wessex Community Assets - which co-ordinates the UK's largest programme of community land trust housing, as well as supporting community share issues in areas such as renewable energy and local food.

Tim recently set up Dorset Community Energy, a community renewables enterprise, established in partnership with Dorset County Council. It has recently undertaken two successful share issues, raising £0.5 million to install PV solar panels on 10 schools and 4 community halls - they will save around £600,000 in electricity costs over the next 20 years, while shareholding members benefit from the feed-in tariff and tax incentives.

Tim has worked with international organisations such as the Resource Centre for Philippine Concerns and the International Institute for Environment and Development, for national organisations such as the New Economics Foundation, and for South West based organisations such as the Bristol & Avon Community Enterprise Network, Dorset Community Action and the SW Protected Landscapes Forum. He was a founder Director of the UK Social Investment Forum.

Tim has a particular interest in reflective practice, both in the field of economics and also in mindfulness related disciplines (meditation, aikido and shiatsu) which he has engaged with since 1984.

Julie Richardson

Julie has over 20 years international experience working across a range of sectors and organisations covering different aspects of sustainable development in Africa, Asia, Latin America and Europe. She has taught at the undergraduate and postgraduate levels at the University of London and in the African and Asian School at the University of Sussex.

More recently she has worked as a senior environmental policy advisor to the Prime Minister's Strategy Unit and as Principal Sustainability Officer for Jonathon Porritt's Forum for the Future. Here her work included advising the business sector on how to incorporate sustainability issues into their corporate strategy including measuring and reporting their wider social and environmental impacts.

In 2005, Julie was awarded an MSc Holistic Science (with distinction) at Schumacher College and since then has undertaken a range of projects to show how new thinking in science can be applied to sustainable development. This includes setting up a programme to attract social and environmental enterprises to the Dartington Estate (where Schumacher College is based) to demonstrate industrial ecology in practice. Julie has published widely, including her most recent co-authored book, *The Triple Bottom Line: Does It All Add Up?* The book highlights a fresh approach to organisational performance that takes account of environmental, social and economic impacts. Julie Richardson was also a Trustee of the Transition Network in its start-up phase.

Julie leads the Schumacher Worldwide Programme and teaches on a range of programmes including the MA in Economics for Transition and the Right Livelihood Programme.

Professor Seaton Baxter OBE

Seaton is an Emeritus Professor in Design at DJCAD and at Robert Gordon University (RGU) in Aberdeen. He originally trained as a building technologist specializing in rural buildings and he then spent 20 years (until 1983) working in agriculture research specializing in the study of design in relation to animal behaviour and welfare. He has been awarded a Churchill Travelling Fellowship and a Mid-America Distinguished Foreign Scholarship for his work in this field. His research led to 3 major books and more than 50 technical papers. In 1983, he joined the RGU as a Head of School and in 1989 he became Dean of the Faculty of Design and later an Assistant Principal of the University. During this period he also studied philosophy at the University of Aberdeen with particular interest in Environmental Philosophy and the Philosophy of Technology. In 1993 he



established the Centre for Environmental Studies at RGU and developed a unique MSc in Ecological Design. Whilst researching in the environmental field, he worked with several environmental NGO's, became a Board member of Scottish Natural Heritage and was honoured with an OBE for his services to the environment in Scotland. In the last 12 years he has been working part-time with postgraduate research students in the School of Design where, in 2002, they established the Centre for the Study of Natural Design. He is now Head of the postgraduate programme in Ecological Design Thinking at Schumacher College

Fellows of Schumacher College

Satish Kumar

Satish was only nine years old when he joined the wandering brotherhood of Jain monks. Dissuaded from his path by an inner voice at the age of eighteen, he left the monastic order and became a campaigner for land reform, working to turn Gandhi's vision of a peaceful world into reality. Fired by the example of Bertrand Russell, he undertook an 8,000 mile peace pilgrimage, walking from India to America without any money, through deserts, mountains, storms and snow. It was an adventure during which he was thrown into jail in France, faced a loaded gun in America – and delivered packets of 'peace tea' to the leaders of the four nuclear powers.

In 1973, he settled in England, taking the Editorship of Resurgence magazine. He has been the editor ever since (30 + years!). He is the guiding spirit behind a number of ecological, spiritual and educational ventures in Britain. He founded the Small School in Hartland, a pioneering secondary school (aged 11-16), which brings into its curriculum ecological and spiritual values. In 1991, Schumacher College, a residential international centre for the study of ecological and spiritual values, was founded, of which he held the title of Director of Programme.

Satish is a Fellow of Schumacher College and a member of the Schumacher College Steering Group.

Professor Patricia Shaw is a visiting professor at the Business School of the University of Hertfordshire, where she co-founded a research centre in 1995; this is dedicated to developing approaches to organisational leadership, learning and change based on insights emerging from what are now known as the Complexity Sciences.

Her own particular interest is in developing people's capacity for participating in the conversational activity that constitutes political life in Organisations, whether private, public or civic (see *Changing Conversations in Organisations*, and *Working Live – Experiencing Risk, Improvisation and Spontaneity in Organisational Change*. Both published by Routledge).

Patricia is a Fellow of Schumacher College and a member of the Schumacher College Steering Group.

Plymouth University Faculty

Professor Michael Punt is a Professor of Art and Technology at the University of Plymouth. He is the founding convenor of Transtechnology Research which has a constituency of 20 international doctoral, post-doctoral and visiting researchers who use a range of practice and theory based methods in making apparent evidence of human desire and cultural imperatives as they are manifested in the way that science and technology is practiced, innovated by entrepreneurs and interpreted by its users. Topics currently being researched concern the historical and philosophical aspects of nineteenth century media and contemporary digital technology, cinema and the technological imaginary, cognitive aspects of industrial design, affective interaction and instrumentation, spatial awareness in scientific representation, and sustainable new materials for artefact engineering. His current academic functions at Plymouth are as a full-time research professor responsible for leading interdisciplinary research projects across the University with teaching responsibility for PhD supervision exclusively at Plymouth and external MSc Holistic Science dissertation supervision at Schumacher College.

Dr Derek Shepherd is Academic Lead – Teaching and Quality, School of Tourism. His academic background was originally in agriculture and agricultural economics at the University of Newcastle upon Tyne. Prior to joining the Plymouth University, Derek worked as an economist for the National Farmers' Union, the Building Employers' Confederation and the Confederation of British Industry.

2.4.2 Visiting Teachers

The Holistic Science Faculty regularly invites the following speakers. At time of going to print not all speakers are confirmed for the 2016-17 academic year.

Dr Shantena Sabbadini was born in Como, Italy, in 1943 and lives in Spain, Italy and Switzerland. He has been a theoretical physicist, a farmer and a translator. From 1994 to 2002 he was scientific consultant for the Eranos Foundation, an East-West research centre located in Ascona, Switzerland. Since 2002 he has been an associate director of the Pari Center for New Learning, an alternative academic institute located in the medieval village of Pari, Tuscany, Italy. He gives lectures, courses and seminars about physics as an instrument of wonder, about using the I Ching, the ancient Chinese oracle, as a tool for introspection and about the relevance of Taoist thought for our post-modern predicament.

Axel Ewald, in partnership with the biologist Dr. Margaret Colquhoun, developed a unique method of helping people to see Nature in its richness and lawfulness with “new eyes”. This method is based on the work of Johann Wolfgang von Goethe (1749 - 1832), who - being an artist himself - laid the groundwork for a new scientific-artistic approach to the life-sciences in his extensive scientific writings. In this method the observing human being is taken seriously as an active participant in the research process, which includes the use of all the senses as well as the development of the feeling sensitivities of the human being as “tools” for a deeper penetration into the nature of the phenomena.

For this purpose guided observation of natural phenomena is complemented by artistic practice - in drawing, clay-modelling, painting, movement and other media - which allows the participants to deepen the experience of what they have observed and to internalize and individualize this experience. Some of the fruits of this work were included in the book “New Eyes for Plants” (Hawthorn Press, Stroud, Gloucestershire, UK) which Axel Ewald co-authored together with Dr. Margaret Colquhoun. Axel has more than 20 years of experience in conducting such workshops in the UK, USA, Germany and Israel with groups of people of all ages and professions - including artists, medical professionals and teachers.

Tchenka Sunderland holds a degree in philosophy and is interested in the wisdom traditions within Western culture. She has been a visiting teacher and volunteer at Schumacher College over the last 14 years.

Dr Francoise Wemelsfelder is a biologist and lectures at the Scottish Agricultural College and at Edinburgh University and elsewhere on animal welfare, animal consciousness, and the principles of qualitative science.

Dr Mike Wride obtained his BSc (Hons) in Physiology and Biochemistry with Nutrition from Southampton University, UK in 1990. He then went to the



University of Alberta, Edmonton, Alberta, Canada where he obtained his PhD in 1996 Mike became interested in apoptosis in development and, in particular, in the development of the ocular lens, which uses apoptosis signalling pathways in order to clear itself of organelles during development, thereby creating a transparent structure essential for correct vision. In 1998, Mike moved to Prof. Derrick Rancourt's laboratory at the University of Calgary, Alberta, Canada where he carried out work on the identification and characterisation of genes expressed during early embryonic stem (ES) cell differentiation into neurons. In 2002, Mike returned to the UK to join Cardiff University as a Senior Research Associate in the laboratory of Prof. Sir Martin Evans (Nobel Laureate, Physiology or Medicine, 2007) and carried out work identifying genes differentially expressed in the lens during the onset of cataract (opacity of the lens). Mike joined the Zoology Department at Trinity College Dublin as a lecturer in October 2007 and is the Ocular Development and Neurobiology Research Group leader.

Jules Cashford is a distinguished Jungian analyst, with a particular interest the Gaia as an archetypal image. She has authored several books, including: *The Myth of the Goddess: Evolution of an Image (1993, with Anne Baring)*.

Antony Turner is the Founder and Managing Director of CarbonSense. He co-authored the report for BT entitled 'What Would a Genuinely Carbon Neutral BT look like?' He is particularly proud of organising an event at the UK Treasury in 2005 called 'Carbon as Currency'. In 1999 he helped set up the 'Business & Sustainability' courses at Schumacher College, which he managed for five years, and in 2000 he wrote the industry submission on wave and tidal power for the House of Commons Science & Technology Committee.

Dr John Stanley has worked as a research scientist in molecular microbiology, initially on the genetics of the Rhizobium-Legume symbiosis and latterly as a research group leader at the UK Health Protection Agency. He has published extensively in this field and is a member of the New York Academy of Sciences.

John's long-term interests have been in the fields of ecology, evolutionary biology, complementary medicine, depth psychology and meditation. Following a meeting with the Dalai Lama several years ago, he created a website Ecological Buddhism, www.ecobuddhism.org which presents the latest analysis of climate change under the three rubrics of Science, Solutions and Wisdom. It has been accessed by over 1.8 million individuals and is read by a few thousand people daily.

John is a member of the International College of Applied Kinesiology and a trainer of Neuro-Linguistic Programming (NLP). His approach to coaching and therapy combines optimum nutrition (nutritional influences on illness) with the healing power of the unconscious mind. He is based in Bristol, England: cf. also www.harmonicwave.net

Dr Rob Hopkins is co-founder of Transition Network. He gave over 25 presentations in 2009 and 2010 including: North West Rural Affairs Conference, Preston (5 March 2009); TED talk (23-24 July 2009); Transition Network presentation to Google staff (17 Sept 2009). He is author of *The Transition Handbook: from oil dependency to local resilience*. Green Books, Dartington; Hopkins, R. (2010).

Dr Martin Shaw is a mythologist, storyteller and award winning wilderness Rites-of-Passage guide. Author of 'A Branch from the Lightning Tree: Ecstatic Myth and the Grace in Wildness (June 2011 White Cloud Press), he works internationally and is visiting lecturer on Archbishop Desmond Tutu's Leadership Programme at Templeton College, Oxford. He teaches at Stanford University, and is the Director of the Westcountry School of Myth and Story

Dr Rupert Sheldrake is one of the world's most innovative biologists and writers. He is best known for his theory of morphic fields and morphic resonance, which leads to a vision of a living, developing universe with its own inherent memory. He worked in developmental biology at Cambridge University, where he was a Fellow of Clare College. He was then Principal Plant Physiologist at the International Crops

Research Institute for the Semi-Arid Tropics (ICRISAT), in Hyderabad, India. From 2005 to 2010 he was Director of the Perrott-Warrick project, funded from Trinity College, Cambridge.

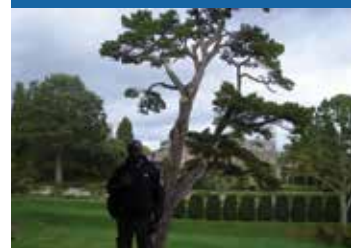
Jonathan Horowitz has been working with shamanism since 1972, and has a master's degree in anthropology. In 1986, he founded the Scandinavian Centre for Shamanic Studies together with Annette Høst and has been teaching internationally ever since. Jonathan is known for his grounded, present and warm teaching style. He has travelled extensively, and from 1984 to 1993 he worked with Michael Harner as a teacher and field researcher at the Foundation for Shamanic Studies. Jonathan is a frequent contributor to Sacred Hoop magazine and is European Editor for Journal of Shamanic Practice. He lives and practices with his partner Zara in the woods of southern Sweden at Åsbacka.

Pat Conaty worked as a researcher at nef for eight years, becoming a nef fellow in 2007. Educated at the University of California with a degree in Political Economy, Pat is an Honorary Research Fellow at the University of Birmingham, a Research Associate at the University of Salford and an Executive Director of Rebuilding Society Network, a social enterprise in Mid Wales. Formerly the Development Director of Birmingham Settlement, an inner city community regeneration organisation, Pat played a pioneering role in setting up several social enterprises fostered there: including Business Debtline and the Aston Reinvestment Trust - the first mutually owned, local Community Development Finance Institution (CDFI) in Britain. He worked for many years in the debt advice field as Director of Money Advice Services for Birmingham Settlement and he is a founder and former Executive Director of the UK Social Investment Forum - the national association of socially responsible investment organisations. Pat also works as a community development finance trainer and consultant with NACUW (National Association of Credit Union Workers) and is a Director of Land for People - the Community Land Trust network for rural Wales and Shropshire

Robin Murray is an industrial economist. He was educated at Balliol College, Oxford, and at the London School of Economics. He joined the London Business School, where he lectured in Economics, and then moved to the Institute of Development Studies, the national centre for the study and teaching of development at the University of Sussex, where he was a Fellow for 20 years.

His work as a consultant on industrial and development issues led him to the conclusion that there was a major role that could be played in achieving social goals by mission driven third sector companies. In the field of development he co-founded Twin and Twin Trading in 1985, working with and establishing farmer's co-operatives. Robin has also developed a range of new ventures in the environmental field. His interest here is in the economy of distributed systems, and their potential for environmental and social sustainability. He co-founded the environmental partnership Ecologika, whose members work in the fields of waste, energy, transport, food and health. From 2004-5, Robin was seconded to the Design Council as Director of RED, its innovation unit, where he led the team working on new forms of health care.

Kaira Jewel Lingo Kaira Jewel (formerly Sr. Jewel) is from the US and has been practicing mindfulness and Buddhist meditation since 1997. She was ordained as a nun by Thich Nhat Hanh in 1999 and as a Dharma teacher in 2007. She



returned to secular life in 2015 and continues as a lay Buddhist teacher and mindfulness teacher. Before ordaining, she graduated from Stanford University with a B.A. and M.A. in Anthropology and Social Sciences. She has led mindfulness retreats in the US, Europe, Asia, Brazil, India and Southern Africa. She spends much of her time sharing mindfulness and compassion, especially with children, families and young people, and bringing mindfulness to teachers and schools. She is editor of *Planting Seeds: Practicing Mindfulness with Children* by Thich Nhat Hanh. She is passionate about exploring the ways art, play and spiritual practice connect. She leads mindfulness courses for artists and has a background in dance and improvisation. She is also a certified Yoga Teacher and InterPlay leader.

Dr. Karambu Ringera is the founder and president of International Peace Initiatives, an NGO that aims to create models of sustainable development and peace in Kenya. She also works to empower vulnerable community members by educating them on how to improve their situation. Dr. Ringera is passionate about reforming corrupt policies and practices in government. She seeks to build an advocacy agency for citizens and develop a leadership-training program that will educate and train current and future leaders of Kenya.

Paula Andreewitch facilitates Theatre of the Oppressed workshops, drawing on the work of Augusto Boal, around the UK, and delivers life coaching and training to inner city young people in London. She is also a classically trained yoga teacher with a background in Capoeira Angola.

Robin de Carteret is an educator, facilitator and consultant in participative education, complexity science and sustainability. He specialises in using experiential activities for investigation, learning and communication. Robin has an MSc in Holistic Science from Schumacher College. He has worked as a sustainability educator for the last 10 years, teaches harmony singing and performance improvisation and was co-founder of Transition Leicester, applying a systems perspective to reviving local communities. He has more recently supported the Masters programmes at the College and now works freelance, acting to bring about change from a living systems view of the world. Website: www.systemsgames.org.uk

Fritjof Capra, Ph.D., is a scientist, educator, activist, and author of many international bestsellers that connect conceptual changes in science with broader changes in worldview and values in society.

A Vienna-born physicist and systems theorist, Capra first became popularly known for his book, *The Tao of Physics*, which explored the ways in which modern physics was changing our worldview from a mechanistic to a holistic and ecological one. Published in 1975, it is still in print in more than 40 editions worldwide.

Over the past 30 years, Capra has been engaged in a systematic exploration of how other sciences and society are ushering in a similar shift in worldview, or paradigms, leading to a new vision of reality and a new understanding of the social implications of this cultural transformation.

His most recent book, *The Systems View of Life* (Cambridge University Press, 2014), presents a grand new synthesis of this work—integrating the biological, cognitive, social, and ecological dimensions of life into one unified vision. Several critics have suggested that *The Systems View of Life*, which Capra coauthored with Pier Luigi Luisi, Professor of Biology at the University of Rome, is destined to become another classic.

Capra is a founding director of the Berkeley-based Center for Ecoliteracy, which is dedicated to advancing ecology and systems thinking in primary and secondary education, and serves on the faculty of the Amana-Key executive education program in São Paulo, Brazil. He is a Fellow of Schumacher College, an international center for ecological studies in the UK, and serves on the Council of the Earth Charter Initiative.

Bruce H. Lipton, PhD is an internationally recognized leader in bridging science and spirit. Stem cell biologist, bestselling author of *The Biology of Belief* and recipient of the 2009 Goi Peace Award, he has been a guest speaker on hundreds of TV and radio shows, as well as keynote presenter for national and international conferences.

Dr. Lipton began his scientific career as a cell biologist. He received his Ph.D. Degree from the University of Virginia at Charlottesville before joining the Department of Anatomy at the University of Wisconsin's School of Medicine in 1973. Dr. Lipton's research on muscular dystrophy, studies employing cloned human stem cells, focused upon the molecular mechanisms controlling cell behaviour. An experimental tissue transplantation technique developed by Dr. Lipton and colleague Dr. Ed Schultz and published in the journal *Science* was subsequently employed as a novel form of human genetic engineering.

In 1982, Dr. Lipton began examining the principles of quantum physics and how they might be integrated into his understanding of the cell's information processing systems. He produced breakthrough studies on the cell membrane, which revealed that this outer layer of the cell was an organic homologue of a computer chip, the cell's equivalent of a brain. His research at Stanford University's School of Medicine, between 1987 and 1992, revealed that the environment, operating through the membrane, controlled the behavior and physiology of the cell, turning genes on and off. His discoveries, which ran counter to the established scientific view that life is controlled by the genes, presaged one of today's most important fields of study, the science of epigenetics.

Dr. Lipton's deepened understanding of cell biology highlighted the mechanisms by which the mind controls bodily functions, and implied the existence of an immortal spirit. He applied this science to his personal biology, and discovered that his physical well-being improved, and the quality and character of his daily life was greatly enhanced.



2.4.3 Support Staff

Michelle North is the Postgraduate Quality Coordinator

Michelle leads the postgraduate administration team and works to strengthen management of our quality assurance processes, to support the postgraduate faculty in programme operations, and to integrate postgraduate students with the quality cycles of the University and College. Michelle works closely with the Postgraduate Teaching Support Volunteer, Postgraduate Administrative staff, students and the faculty, to support your student experience, coordinating and enhancing our Quality Assurance work.

Michelle can be contacted on +44 (0)1803 847231 or via: Michelle.North@schumachercollege.org.uk

Tamsin Bailey Treleaven is the Postgraduate Administrator

Tamsin works full- time in the postgraduate administration office. She handles all course enquiries and admissions, as well as providing administrative support to students enrolled on Masters Programmes.

Tamsin can be contacted on +44 (0) 1803 847212 and at postgradadmin@schumachercollege.org.uk.

2.5 Staff/ Student Communication

The Institution and programme staff will communicate with students in the following ways:

- Email
- Virtual learning environment (<http://open.schumachercollege.org.uk/my/>)
- Plymouth University Student Portal (see section below)
- Postgraduate Student White-Board (located in the Old Postern Foyer)

2.6 The Postgraduate Learning Journey

The aim of the programme is to produce postgraduates with the ability to apply holistic research methodology to a wide range of scientific, technical and social problems. The specific aims of both the Masters and PG Cert programmes are to:

- Cultivate an approach to the natural world that deals rigorously with the understanding of complex wholes and their emergent properties while including qualities and values as essential components of an extended science;
- Acknowledge and develop the whole person as a participant in the process of gaining reliable and scientifically rigorous knowledge of the world;
- Cultivate transferable employment skills, personal skills and skills in research methodology (In addition to cognitive skills);
- Produce postgraduates who can make a significant contribution to current efforts to develop ecologically and socially sustainable ways of living.

In addition, the Masters programme aims to enable students to apply Holistic Science principles to a wide variety of disciplines and to use holistic science research methodologies within a dissertation project.

In order to achieve these aims, the programme has developed specific learning outcomes, which are covered in more detail in the module descriptions in section 15.

In keeping with the holistic learning ethic at Schumacher College, students are encouraged to explore not only new intellectual concepts and models but also, and in parallel, to embark on an inner journey of transformation. This involves an investigation into how existing belief systems and worldviews are challenged by the experience of being a member of the learning community at Schumacher College. In many cases, this involves a (not always comfortable!) process of 'unlearning' previous belief systems to make way for the new.

A variety of tools will be placed at the disposal of the students to help them on this journey of discovery. These include sessions aimed at developing techniques for reflective practice and action learning to help them reconnect with themselves, with others and with the other-than-human world. Tools will also be introduced to help the students better understand the various modes of learning (analytical, sensory, emotional, and intuitive) with a view to helping them increase their range of learning tools. In addition, experiential workshops will provide students with frameworks to better understand their own purpose (such as the 'ecological self' framework of Arne Naess) as part of their transformational journey.

Modes of learning will be selected to reflect the holistic learning approach at Schumacher College that acknowledges and develops the whole person – intellectual, emotional, ethical and practical. In addition, Schumacher College values trans-disciplinary approaches and different ways of knowing. As well as presentations and seminars there will be an emphasis on participatory and experiential methods and reflective inquiry to enable students to apply the learning to their own experience.

A wide variety of teaching and learning methods will be employed either as a stand-alone approach or in combination (as appropriate). An overview is given in the Table overleaf:



Teaching & Learning Methods	Description, Rationale and Examples
Presentations	Presentations by faculty and visiting teachers provide students with knowledge, theories and methodologies from experts in the field. These are supplemented with reading lists and audio-visual materials.
Workshops	Workshops provide a forum for discussion, role-play, peer-to-peer learning and team working. Students work with conflicting ideas and build confidence and skills in group facilitation and presentation.
Seminars	Students present their own work with the support of the group. Encourages active learning and peer-to-peer learning.
Tutorials	Individual tutorials allow students to discuss specific projects, respond to feedback and reflect on learning and practice.
Case Studies & Field Trips	Case studies in class and visits enable students to link theory to practice and work through examples.
Simulations, Exercises & Role Play	Encourages pro-active learning through experience; provides opportunities to link theory to practice and engage with different perspectives. Exercises develop skills in applying tools, methods and research methodologies.
Independent Study	Independent study and reading enables students to develop skills in working autonomously and to identify, plan and carry out a project.
Coursework, Research & Dissertation Feedback	Students are given the opportunity for individual feedback from tutors on drafts of essays and other work before submission for assessment. This enables students to respond to feedback, develop knowledge and critical skills; as well as refining communication skills.
Student presentations	Develops skills in communication, debate, dialogue and teamwork as well as providing opportunities for peer-to-peer learning and engaging with different perspectives.
Research Skills, Methods and Dissertation	<p>Research methods and skills are taught as an integral part of the core taught modules. For example, Goethian Science and Free Choice profiling (SCH5401); complex systems Analysis (SCH5402) and simple modelling of the carbon cycle (SCH5403).</p> <p>There will also be optional research methods workshops shared with the postgraduate programme in Economics for Transition that develop skills in research design, planning and implementation; presentation skills and report writing, bibliographic skills; management and analysis of qualitative and quantitative data with applications relevant to the Holistic Science Dissertation.</p>
Reflective Inquiry	Reflective inquiry learning sets encourage students to take ownership of learning and encourage continual cycles of reflection, refinement, action and experimentation.
Participatory Learning Methods	A wide range of methods (ranging from deep ecology exercises to open space group dynamics) are used to enable experiential and embodied learning and to link theory to practice.

3.0 Programme Structure and Pathways

3.1 Programme Structure for Holistic Science

Course Code: 2216

Full / Part Time: PT / FT

A summary of the structure of the programme is shown below.

Term 1: Core Modules

Term 2: Electives

Students select 2 from 3 electives

Term 3: Completion of Dissertation

SCH5401 (20 credits) Science with Qualities	SCH5409 (20 credits) Economics and Development
SCH5402 (20 credits) Chaos and Complexity	SCH5405 (20 credits) Contemporary Issues in Holistic Science
SCH5403 (20 credits) The Living Earth	SCH5406 (20 credits) Leading In the Midst of Complexity
SCH5404 (80 credits) Holistic Science Dissertation	

Indicative Part-time Pathway 1 (24 months)

Please Note - Electives offered for 2016/17 may be subject to change in following years. Students complete the core modules in Academic Year 1 and the electives and dissertation in Academic Year 2.

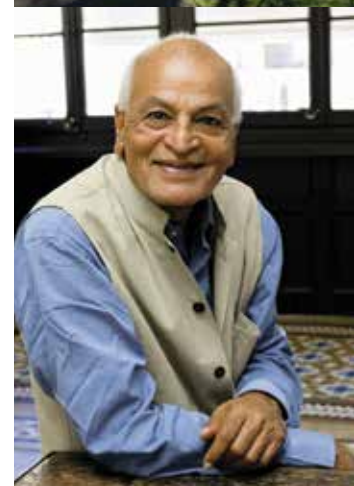
Term 1 - 2016/17: Core Modules

Term 2 - 2017/18: Electives

Students select 2 from 3-4 electives

Term 3 - 2017/18: Completion of Dissertation

SCH5401 (20 credits) Science with Qualities	SCH5406 (20 credits) Leading In the Midst of Complexity
SCH5402 (20 credits) Chaos and Complexity	SCH5405 (20 credits) Contemporary Issues in Holistic Science
SCH5403 (20 credits) The Living Earth	SCH5409 (20 credits) Economics and Development
SCH5404 (80 credits) Holistic Science Dissertation	



Indicative Part-time Pathway 2 (36 months)

Students complete the core modules in Academic Year 1; the electives in Academic Year 2 and the dissertation in Academic Year 3.

Term 1 - 2016/17:

Core Modules

SCH5401 (20 credits)
Science with Qualities

SCH5402 (20 credits)
Chaos and Complexity

SCH5403 (20 credits)
The Living Earth

Term 2 - 2017/18: Electives

Students select 2 from 3-4 electives

SCH5405 (20 credits)
Contemporary Issues in Holistic
Science

SCH5406 (20 credits)
Leading In the Midst of
Complexity

SCH5409 (20 credits)
Economics and Development

Term 3 - 2018/19:

Completion of Dissertation

SCH5404 (80 credits)
Holistic Science Dissertation

The Masters award is obtained by satisfactory completion of 180 Master-level credits, comprising the three core modules (20 credits each), two electives (20 credits each) and dissertation (80 credits).

The Postgraduate Certificate is obtained by satisfactory completion of the three core modules (60 credits).

For more information on Level Descriptors please see the QAA website and view Level 7 study. A copy of this descriptor can also be found on the open area of the VLE. <http://www.qaa.ac.uk/en/Publications/Documents/The-framework-for-higher-education-qualifications-in-England-Wales-and-Northern-Ireland.pdf>

Information about the Qualifications and Credit framework in the UK can be found here:

<http://www.accreditedqualifications.org.uk/qualifications-and-credit-framework-qcf.html>

3.2 Core Modules

Students follow the three modules indicated in table (i) above in the first term, including satisfactory completion of course assessments as described in section 7:

- SCH5401: Science with Qualities
- SCH5402: Chaos and Complexity
- SCH5403: The Living Earth

3.3 Elective Modules

Masters students are required to choose two elective modules from the Schumacher College short-course programme. These modules are 20-credit, three-week residential courses in term two. The optional modules provide the opportunity to examine areas of interest in greater depth with specialist visiting teachers.

All of the elective modules are also open to the students taking the MA Economics for Transition at Schumacher College, as well as external short course participants. A cap of no more than 25 participants will be imposed for each of these electives, with a waiting list, organised on a first-come, first-served basis.

The electives offered in the 2016/17 academic year are:

- SCH5406: Leading In the Midst of Complexity
- SCH5409: Economics and Development
- SCH5405: Contemporary Issues in Holistic Science

Further information about the Elective Modules can be found in section 15.2.

3.4 Dissertation

The dissertation provides students with an opportunity to pursue their own in-depth research related to Holistic Science. Two one week workshops in research methods will be offered, one at the beginning and the other at the end of term 2. Students are strongly advised to start thinking about their dissertation in the first term. This will enable work to start in the second term, with the final term fully dedicated to the dissertation.

More information on the dissertation project is provided in sections 7.3 and 15.3 and in the *Dissertation Guidelines*, found in Appendix A at the end of this handbook.



4.0 Course Resources

Schumacher College students have full access to:

- Old Postern Library
- Craft Education Library
- Elmhirst Centre Library
- Plymouth University Library (online and in person)
- IT facilities including a new large format printer
- Course-specific resources on the V.L.E.
- English Language Support resources on the V.L.E.; for those with English as a second language.
- Postgraduate Study room (with two computers linked to a full colour Photocopier)
- Schumacher College archive of audio and video recordings which goes back 25 years. Here you will find early recordings of individuals such as James Lovelock, Arne Naess, Brian Goodwin, Fritjof Capra, Vandana Shiva and many lectures and interview of visiting teachers. An increasing number of these are available online at <https://www.youtube.com/user/schumachercoll/>. And can also be found: at www.schumachercollege.org.uk/resources. The College is working on digitising this audio-video material.

The above list of course resources is not exhaustive; we have chosen to list only the core resources available to you.

5.0 Enhancement Activities

Schumacher College strive to continually review and enhance our offer to student's each year.

How do we choose areas of Enhancement?

Schumacher College listen and reflect upon a wide range of input in choosing areas that we'd like to enrich. Each year, the College review feedback from many different sources, including, but not limited to feedback from Students, Staff, External Examiners, Plymouth University, and the QAA. From this input we analyse programme and college level strengths and weaknesses to determine which areas could be altered or improved, and which could be further enhanced. The Head of College reviews all data and considers areas of enhancement in light of the overarching College Strategy.

At present there are three core enhancement activities we are focusing on:

- **Development of a ResM/PhD programme**

On the 25th July 2015, Plymouth University approved our plans to be a Research centre. Dr Stephan Harding will be leading work on our fledgling Postgraduate Research Programme: PhDs and Research Masters. Development of this programme will allow students to engage in deeper enquiry and make a contribution to the world in holism and its application to the systemic crises we face. We will start small and begin to grow a significant body of practice, knowledge and, we hope, wisdom for the public good and the living planet. The centre will complement and enhance our taught postgraduate programmes; nourishing the broader learning community at the College, Dartington and communities near and far. The creation of an extended programme of research-based inquiry has significant potential to further deepen the work we do and enhance the impact that this work will have.

- **Strengthening our Teaching, Learning and Research Committee**
The Teaching, Learning and Research Group (made up of staff from all programmes) meets informally to discuss, debate and enhance our thinking and activities in this field. Actions arising from this group are brought forward to the formal Teaching, Learning and Research Committee Meetings where actions are noted and new ideas, policy or wider debates are tabled for discussion. Recent work completed by this group includes the development of the framework necessary for us to develop as a research centre, and in 2015-16, the first draft of a document on the College's pedagogical philosophy and practice. This document will remain 'live' (meaning subject to continual upgrading) and will be a critical public document that over the coming years will capture, articulate and inform the evolution of pedagogical practice at the College and form the foundation for partnerships with other educational bodies.

In 2016-17 Academic Year, the focus of the Teaching, Learning and Research Committee will be to 1) to develop our Supervisory capacity in support of research and 2) iterative enhancement of the College strategy.

- **Development of The Schumacher Network**

In March 2015, Schumacher College was successful in its crowd-funding and other fundraising to start building the first phase of a Schumacher Network; an on-line worldwide networking platform.

Schumacher Network would have the following features:

Connect: enables members (both individuals and organisations) to connect together across communities of place and communities of interest;

Collaborate: enables members to actively collaborate in a variety of different ways e.g. joint projects; discussion and dialogue; organising joint events;

Learn: enables members to access and share information, knowledge, and participate in on-line learning programmes.

The first phase will focus on the Connect and Collaborate functions and we hope to launch In Autumn 2016.



6.0 Teaching, Learning and Assessment

6.1 Introduction to Assessment Methods and Guidelines

Assessment is touched on elsewhere in this document. In section 6.2 and 6.3, the assessment criteria specific to each module and the dissertation are described. Meanwhile, Section 18 [*Academic Policy and Practice*], of the Student Schumacher College and University Handbook 2016/17 describes Plymouth University's assessment policy and the rules governing the submission of assessment assignments. Here, a brief overview is provided to the ethic and practice of assessment relating to the economics programme.

A range of assessment methods has been devised to ensure that the learning outcomes of the programme are adequately assessed. These will include opportunities for formative assessment such as constructive feedback on drafts of assignments and peer-to-peer feedback on presentations. Please note that drafts of work at any stage can be submitted; you do not need to submit a complete draft assignment for feedback.

As Schumacher College takes a holistic and transformative approach to learning, the postgraduate programme also encourages novel and holistic approaches to social scientific investigation and communication of the results. Students' assessment assignments may take many forms and result in very different outcomes to traditional styles of research and reporting, especially as one of the aims of the programme includes developing reflective awareness of one's own values, purpose and behaviours related to the economics of transition.

Therefore, assessment projects associated with both the core and elective modules and the dissertation may include alternative creative formats alongside those normally used in the social sciences. These may include personal narrative and experimental material woven into the written account of the investigation, such as documentaries or arts works.

6.2 Core and Elective Module Assessment

Assessed assignments produced for the core and elective modules are marked by the Schumacher College faculty, and reviewed by the External Examiner. Key assessment methods include:

- *Attendance*: You are expected to attend all teaching sessions of the three core modules and two of the short-course electives.
- *Projects / essays*: For each core and elective module, students are expected to submit either a full academic essay (3,000 words), a shorter academic essay (1,000 words) together with an artistic project (such as a documentary), or a shorter academic essay (1,000 words) along with a formal presentation. In cases where artistic work is involved, it is a requirement that the students get the approval of faculty in advance and explain in their academic essay how this work relates to the learning outcomes of the module in question. In module 3, there is a smaller piece of assessed work involving group work and presentations.

6.3 Dissertation Assessment

As with previous assignments, your dissertation topic will be chosen and designed to assess your achievement of the particular learning outcomes for the module. You will be given Assessment Criteria which are used to judge the extent of your achievement.

The dissertation is marked by the dissertation supervisor and by a second marker and a selection will be moderated by the External Examiner. Within 40 working days following submission students will receive feedback on the dissertation; along with a provisional mark.

Please note that **ALL** assessment marks and results are provisional until confirmed by the Subject Assessment Panel and verified by the Award Assessment Board. If you do well enough, i.e. you average a mark of over 70% over all your modules at the end of your programme then you will qualify for the award of a *Masters Degree* with distinction. You should note marks of 70% and over are awarded for outstanding work only



7.0 Timetable for Programme and Submission of Assessment Projects

7.1 Programme Timetable

Detailed timetables for each module will be distributed at the beginning of each module.

2016

Term 1

Registration & College Induction Week

Tuesday August 30 – Tier 4 students. Wednesday August 31st – UK/EU Students

Core Modules

- Monday 5 September Friday 9th September
Introductions and Induction to Programme
- Monday 12th September – Friday 7 October, 2016
Module SCH5401 – Science with Qualities
The final week of this module is a Reading Week.
- Monday 10 October – Friday 4 November, 2016
Module SCH5402 – Chaos and Complexity
The final week of this module is a Reading Week.
- Monday 7 November – Tuesday 29th November, 2016 (Taught weeks)
Module SCH5403 – The Living Earth
The Reading Week for this module commences on the afternoon of Wednesday 30th November and runs until Wednesday 7th December. From Thursday 8th December there will be tutorial sessions, the possibility of 1 or 2 visiting speakers and more opportunities for study.

Christmas Break

Friday 16 December, 2016 – Monday 9 January, 2017

Term 2

Elective Modules

Students from both MSc Holistic Science and MA Economics Programmes select two from the following three elective modules below:

2017

- Monday 9 January – Friday 27 January
SCH5406 Leading in the Midst of Complexity (Elective Option 1)
- Monday 6 – Friday 10 February
Research methods 1
- Monday 13 February – Friday 3 March
SCH5409 Economics and Development (Elective Option 2)
- Monday 13 March – Friday 31 March
Module SCH5405: Contemporary Issues in Holistic Science (Elective Option 3)
- Research methods II - Monday 10 – Thursday 13 April

The Research Methods workshops (I & II) are unaccredited but will provide you with essential skills for the dissertation period. This will include advice on the process for selecting and designing a suitable research topic for the Dissertation.

7.2 Assessed Assignment Submission Dates

The postgraduate programme in Holistic Science is 100% assessed by coursework.

Students are strongly encouraged to submit a draft of their coursework for feedback by their relevant college faculty.

A summary of dates to hand in drafts and final course assessments is given below.

2016

Term 1 Core Modules

Module SCH5401 - Science with Qualities

- **Monday 31 October** - Submit draft/outline to receive tutor feedback.
- **Friday 4 November** – Final Submission deadline

Module SCH5402 - Chaos and Complexity

- **Monday 12 December** - Submit draft/outline to receive tutor feedback
- **Friday 16 December** - Final Submission deadline

Module SCH5403 - The Living Earth

- **Monday 2 January** - Submit draft/outline to receive tutor feedback
- **Monday 9 January** - Final Submission deadline

2017

Term 2 Electives

Module SCH5406 - Leading in the Midst of Complexity

- **Monday 30 January** - Submit draft/outline to receive tutor feedback
- **Monday 6 February** - Final Submission deadline

Module SCH5409 - Economics and Development

- **Monday 6 March** - Submit draft/outline to receive tutor feedback
- **Monday 13 March** - Final Submission deadline

Module SCH5405 - Contemporary Issues in Holistic Science

- **Monday 3 April** - Submit draft/outline to receive tutor feedback
- **Monday 10 April** - Final Submission deadline

*Final submissions need to be made via the virtual learning environment (VLE) no later than **midday (12 noon) UK time** on the date specified above.*



Dissertation Calendar (2017)

- **Monday 13 February** - Deadline for submission of Dissertation project proposal; *including* outline of proposed methodology
- **Friday 30 June** - Deadline for the submission of dissertation drafts for comment. *By this date, it is expected that you will have produced solid working drafts of your introduction, literature review, and methodology.*
- **After Friday 30 June** – following submission of drafts deadline
Students are welcome to contact staff members for questions, but may not submit further drafts for comment.
- **Thursday 31 August** - Deadline for submission of completed dissertation.
Please see Appendix A for submission regulations
- **Dissertation Submission**
The Dissertation Guidelines document (Appendix A - at the end of this handbook) will provide you with all that you need to be able to complete a successful dissertation.

*Final submissions need to be made via the virtual learning environment (VLE) no later than **midday (12 Noon) UK time** on the date specified above.*

7.3 Selection of a Dissertation Topic and Supervision

The Dissertation module leader, Stephan Harding, will help you identify a Primary Dissertation Supervisor. This Supervisor may come from within the Schumacher College faculty, from Plymouth University or from some external university or organisation. All students will also have a Secondary Supervisor. Generally, students will look to their Primary Supervisor as principal source of advice and guidance, with the Secondary Supervisor playing a significantly lighter support role, often limited to marking the final dissertation and agreeing on a mark with the Primary Supervisor. Students are required to maintain close academic contact with their Primary Dissertation Supervisor through visits and/or email.

Term 2

There will be two weeks of teaching on research methodologies, one towards the beginning and one at the end of term 2. This will include advice for students on the process for selecting and designing a suitable research topic for their dissertation.

As outlined in the timetable above, Students are required to submit a proposal outlining their project and proposed methodology no later than **Monday 13 February 2017**. This is both to encourage the students to begin early the process of selecting a dissertation topic and to enable the allocation of the most appropriate dissertation supervisors. The proposal is not formally assessed but does need to be approved by the leader of the Dissertation module;

Students are encouraged to select their own dissertation topic but can also draw from a communal pool of projects prepared in advance by the programme faculty. Examples of indicative dissertation topics include: developing quantitative and/or qualitative indicators of economic resilience; the application of concepts from complexity theory to business leadership; a documentary about the health of global financial markets based on a systems model; and an action research inquiry into setting up a local transition initiative.

Once a Supervisor has been allocated, you should book a tutorial with them to discuss your Dissertation Proposal; covering Ethical approval processes for research involving human participants and whether a Risk Assessment is necessary.

Students are required to maintain close academic contact with their dissertation supervisor through visits and/or e-mail/Skype.

All forms are available on the Open Area of the VLE and can also be obtained from the Postgraduate Administration office (postgradadmin@schumachercollege.org.uk)

Beginning of Term 3

Students should focus 100% on their dissertation research and submit drafts to their supervisor to read/comment on material. The final deadline for drafts is 30 June.

After 30 June 2017, students are welcome to contact staff members for questions, but not to read and comment on specific material. In other words you will continue to have staff support/guidance and conversations on critical issues/questions, but it is up to you to write and present the final document.

Staff agree on the need to be consistent in our approach to ensure fairness to you all, so whilst we may be around during the summer break we are unable to read your dissertation.

This may seem strict. However, some institutions provide no reading of draft material at all for Masters Dissertations. At others, it is true Supervisors will read material right up until the submission deadline. On the face of it, the latter may be more appealing to you as students. However, the problems with such an open-ended arrangement are threefold:

- i) there are discrepancies in how much individual staff members will comment and when they are available (especially given that many staff members take their holidays in the summer months); and
- ii) this leads to some students being (dis)advantaged over others due to things such as staff leave/other commitments;
- iii) As a professional qualification, at Master's level you are expected to undertake and produce your own work, not the work of your supervisor.

We believe supervision arrangements in place provide you with a good level of support to meet the deadlines set.

Full dissertation guidelines, including ethical principles for research involving human participants and guidelines for the production and submission of dissertations can be found in Appendix A. A further copy can be found on the Open area of the VLE <http://open.schumachercollege.org.uk/course/view.php?id=89>

It is the expectation of the College that you will remain in regular contact with your Supervisor and continue working full-time on your Dissertation regardless of your study location. If you are a Tier 4 student the UKVI regards your constant progression and contact as necessary for us to maintain our sponsorship licence. Tier 4 student responsibilities regarding contact will be given to you at the end of Term 2.

Please see Appendix A for the following:

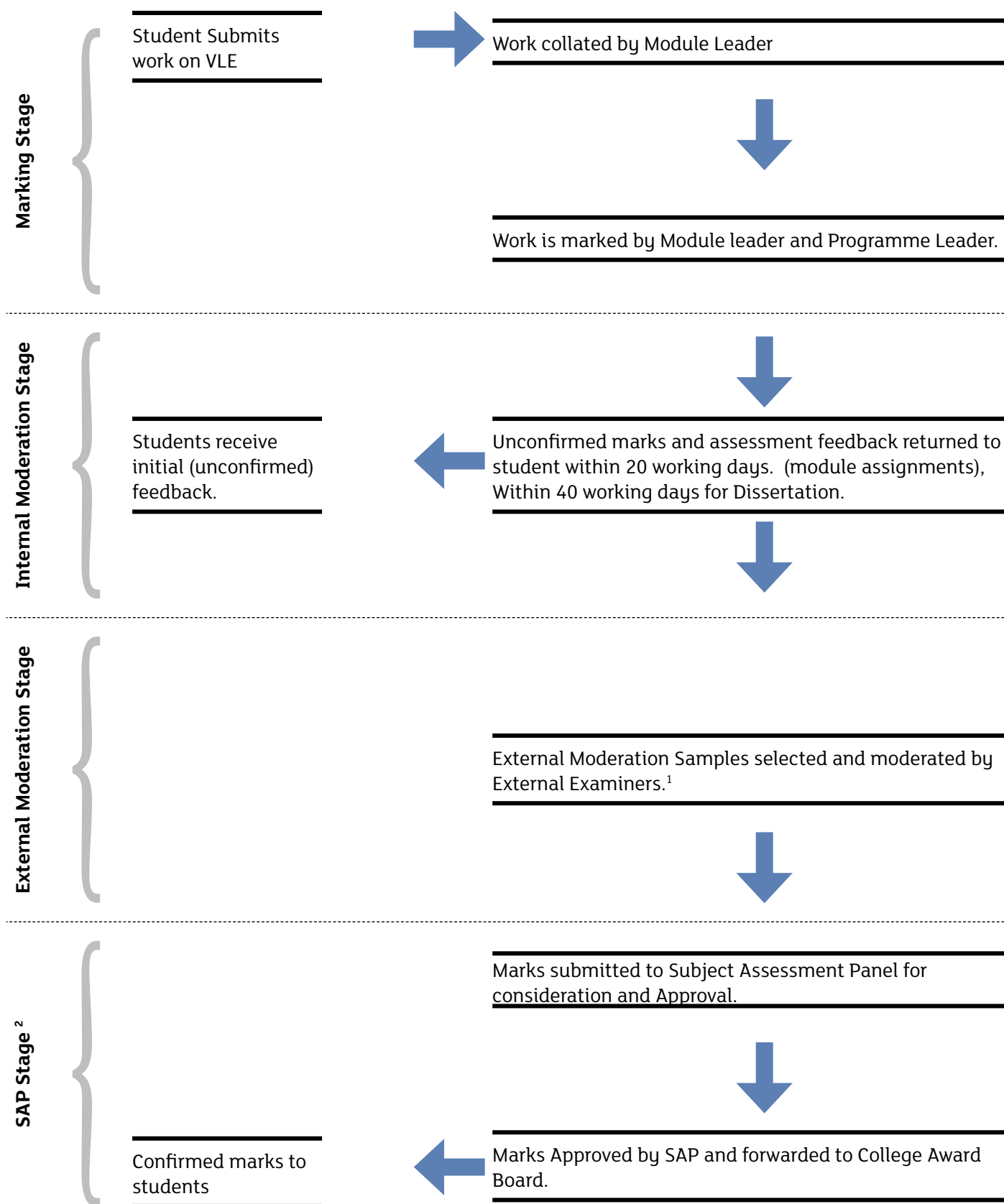
- Dissertation Formatting,
- Dissertation Submission rules
- Ethics Information
- Ethics Application form

Please see Appendix A for submission regulations.

Tel: +44 (0)1803 865934



7.4 Assessment Flowchart



1. The sample for External Moderation currently comprises of two from each marking band; top, middle and bottom. Sampling arrangements are agreed with the External Examiner.
2. Subject Assessment Panel. Marks for the Taught Modules are considered here. All marks are taken forward to the Annual Award Board and are then ratified by Plymouth University.

8.0 Submission of Assessed Work

The submission process and Rules concerning Academic Policy and Practice can be found under Section 18 of the Student College and University Handbook.

Rules concerning Late Submission or Extenuating Circumstances can be found under Section 19 of the Student College and University Handbook.

9.0 Return of Assessment and Feedback

Feedback on Module Assignments

Faculty aim to give all feedback on module assignments within 20 working days of submission. Feedback will be returned using the Assignment Feedback form (found under point 10).

Feedback on Final Dissertation

Faculty aim to give all feedback on dissertation assignments within 40 working days of submission. Feedback will be provided by both markers.

Please note that all marks given on feedback forms are unconfirmed until moderated by the External Examiner and approved by the Subject Assessment Panel to be forwarded to the Award Board.



10.0 Assignment Feedback Form

The Postgraduate Quality Committee are considering a new Marking Rubric template to replace this Feedback Form. Where amendments are made, Students will be informed.

Example of current marking feedback form:

MSc Holistic Science/MA Economics for Transition 2016/17

Module Code/Name:

Short Module Descriptor:

Student:

Provisional mark:

Learning Outcome	Assessment criteria		
	Pass (50 - 59%)	Merit (60-69 %)	Distinction (70 - 100%)
Knowledge and Understanding:	Demonstrates a partial knowledge and understanding of the principles of indigenous wisdom but does not refer to the module content in sufficient detail.	Demonstrates a sound knowledge and understanding of the principles of indigenous wisdom but could have focussed on the module content with more precision and clarity.	Demonstrates full and detailed knowledge and understanding of the principles of indigenous wisdom. There is originality, a clear focus on the course content and evidence of transformational learning.
Communication and presentation:	Comprehensible writing style. Report is clearly presented, draws appropriately either from the relevant literature or personal experience, but referencing is absent or incomplete.	Very clear writing style. Report is clearly presented, draws appropriately from the relevant literature and personal experience and is correctly annotated.	In addition, report uses a succinct, innovative and mature writing style.
Cognitive and intellectual skills:	Demonstrates some critical evaluation of the module content.	Critical evaluation of the module content is thorough and rigorous, demonstrating a comprehensive and reflective understanding of the principles of indigenous wisdom.	In addition, demonstrates that the course content has been thoroughly understood and incorporated into the student's world view.
Key/ Transferable Skills:	Demonstrates some ability to apply learning from the module to wider contexts.	Demonstrates good ability to apply learning from the module to wider contexts.	Demonstrates excellent ability to apply learning from the module to wider contexts, with clear evidence of originality

Comments:

Date:

11.0 Referencing Guide

The full guide to Referencing can be found in the Student College and University Handbook under Section 25.

It is vitally important that you refer to sources of literature wherever possible. This may be achieved throughout the text of all your written work and/ or in a list of references that appear at the end of your work.

Please note that you should provide a list of only those references that you have cited in your work. You are neither asked for, nor should you provide a bibliography, which is all the material you consulted during the research process for your written work.

You should follow the **Harvard** system of referencing

Online support available through the University Referencing Library Guide including the online version of 'Cite them rite'.

12.0 External Examiners

External Examiner reports can be found on the VLE open area:- <http://open.schumachercollege.org.uk/course/view.php?id=89>

You can also find your External Examiner reports online through the [Plymouth student portal](#) under the tabs 'Your Learning, Your External Examiner'.

External Examiner Details:

Dr Andrea Beradi – MSc Holistic Science. The Open University

Each programme has an External Examiner who comes from a Higher Education Institution in the UK (not Plymouth University). The Subject External Examiner is primarily concerned with the standards of assessment of the subject and therefore attends the subject assessment panel. They will verify the process of assessment throughout your modules advise upon re-assessment (further information can be found within your teaching learning and assessment handbook). Your final result is decided by an Examination Board which happens in June followed by resit boards in September.



13.0 Student Voice

Your opinions and needs, often known as the ‘Student Voice’, are an important aspect of being an HE student. The Quality Assurance Agency (QAA) for Higher Education suggests that ‘Student engagement is all about involving and empowering students in the process of shaping the student learning experience’. Thus the Student Voice is really important and as such we actively encourage all students to get involved at a range of levels in their learning and in quality assurance, enhancement and management of their course. More information can be found at <https://www.plymouth.ac.uk/student-life/student-voice>

14.0 Employment and Progression Opportunities

Progression

Students who have successfully completed a PG Cert may choose to progress to the full Master’s degree. Due to visa restrictions, this opportunity is not available to International students who would require a Tier 4 visa to study in the UK.

Following the Master’s programme, students may wish to progress to deeper level enquiry offered by the PhD programmes; currently under development. If you are interested in undertaking further research please speak with your programme faculty team.

Employment

As a student studying at higher education level, your programme has been designed to help you to progress in your chosen livelihood. Many of the College’s teaching staff and alumni, together with the many high-profile guest presenters on the course, will be able to give you helpful livelihood advice. For further information, speak with your programme faculty team.

It is our intention that the developing Schumacher Network will support students and alumni in moving forward to connect and collaborate in their chosen field of interest.

Further careers and employability advice is available online from the Plymouth University Careers and Employability Service (<https://www.plymouth.ac.uk/student-life/your-studies/academic-services/careers-and-employability>) As a graduate you will have a wide choice of career opportunities throughout the private and public sectors, both in the United Kingdom and abroad.

15.0 Programme Details

15.1 Core Modules

The first full week at the College will be given over to induction of the students into the programme and life at the College. The rest of the first term will be divided into three core modules.

A detailed timetable, including session details, presenters and recommended resources for each module will be provided to students in advance of the module in question.

Module SCH5401: Science with Qualities

Module Leader: Stephan Harding
Other Module Staff: Craig Holdrege, Philip Franses, Martin Shaw, Tchenka Sunderland, Francoise Wemelsfelder, Glenn Edney
Dates: Monday 5 September – Friday 7 October 2016
Credits: 20 (level 7)

Aims

This module aims to develop a mastery of the philosophy and methodology of holistic science in order to develop a participatory relationship with nature.

Course content

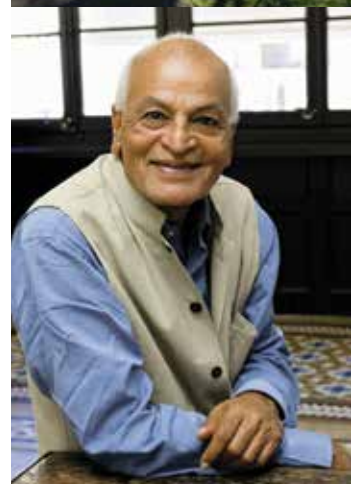
This module explores the philosophy and methodologies of an expanded science that values qualities as much as quantities. This new approach cultivates intuition, sensory experience and ethics as well as rational thought as a way of understanding and interacting with the natural world.

In this module, students explore basic philosophical questions central to science such as: 'How do we acquire reliable knowledge?' and 'How do we investigate natural processes?' Principles and concepts from phenomenology, cognitive science and the history of ideas are applied to the understanding of relationships between parts, wholes and emergent phenomena. Students will review the fundamental principles of Western science and explore both the usefulness and drawbacks of the reductionist approach using examples from the history of science and biology. Alternative methodologies will be offered, including Goethe's scientific approach to the study of colour, morphology and landscape. The use of Free Choice Profiling which involves the qualitative evaluation of phenomena in various domains will also be explored.

Assessed learning outcomes

At the end of a module you are expected to be able to:

- Evaluate and critically reflect on the reasons for extending modern science to include qualitative epistemologies.
- Define and critically evaluate key insights from holistic science using various examples from philosophy, Goethean science and biology.
- Apply the principles and methods of holistic science to advanced research in any area.



Assessment mode

100% coursework comprising: Portfolio. This will be one of the following:

- An academic essay
- An academic essay plus an artistic project in Goethian science (indicative weighting: 90% for the academic essay and 10% for the artistic project in Goethian science)
- An academic essay plus oral presentation. (indicative weighting: 80% for the academic essay, 20% for oral presentation).
- An academic essay plus an artistic project in Goethian science plus oral presentation. (indicative weighting: 80% for the academic essay, 10% for the artistic project in Goethian science, 10% for oral presentation).

Indicative Syllabus Content

Philosophical inquiry:

- To understand the importance of the 'organising idea' in the development of scientific worldviews;
- To use hermeneutic inquiry in the construction of holistic understanding of natural phenomena.
- *Methodologies of intuitive and holistic understanding*
- Methodology of reductionism illustrated by examples from the history of science and biology;
- Goethean science applied to colour, morphology and landscape;
- Application of Free Choice Profiling to qualitative evaluation in various domains.

Schedule of teaching and learning

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, field trips, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, learning journal, participatory learning methods and personal development planning.

Recommended texts and sources

- Bortoft H. *The Wholeness of Nature* (1996). Floris Books
- Bortoft H. *Taking Appearance Seriously* (2012) Floris Books
- Colquhoun M. and Axel E. (1996) *New Eyes for Plants*. Hawthorn Press.
- Goodwin B. *Nature's Due* (2007): *Healing our Fragmented Culture*. Floris
- Holdrege C. (2013) *Thinking Like a Plant*. Lindisfarne

Module SCH5402: Chaos and Complexity

Module Leader: Philip Franses
Other Module Staff: Mike Wride, Jamie Perrelet, Glen Crust,
Dates: Monday 10 October – Monday 31 October 2016
Credits: 20 (level 7)

Aims

This module explores the self-organising dynamics of complex systems as a foundation to the development of coherent form in physical, biological and social systems.

In terms of skills this module aims to support an appropriate application and mastery of the recognition and participation in dynamic systems, including a trans-disciplinary perspective in science; computer and conceptual skills required for analysis and study of emergent processes in complex systems; methods of quantitative and qualitative investigation.

Course content

Using a combination of experiential work, open discussion, computer modelling and careful observation of nature, students develop an understanding of emergence at different levels of organisation. Chaos and complexity theories will be used to explore the origination of meaning in diverse complex systems, from the atom, the cosmos, the embryo, the development of form in organisms and the pulsing of the human heart. Through these investigations, students will see how complex systems tune themselves towards the ‘edge of chaos’, a domain of rich possibilities for creativity and meaningful expression of innate wholeness.

Assessed learning outcomes

At the end of the module, you are expected to be able to:

- Demonstrate familiarity with the basic mathematics of chaos and complexity theories.
- Define and critically evaluate the essential characteristics of emergent properties.
- Articulate how complexity theory can be used to investigate the notion that science can provide us with complete knowledge and control.
- Articulate a range of ways in which chaos and complexity theories help to envision and enact alternatives to rigid hierarchical human organisational structures.
- Demonstrate familiarity with how chaos and complexity theories can open up a more participatory view of the Universe.

Assessment mode

100% coursework comprising: Portfolio: This will be one of the following:

- An academic essay plus oral presentation (indicative weighting: 90% for the academic essay and 10% for oral presentation)
- An artistic project with an academic commentary plus oral presentation. (indicative weighting: 60% for the artistic project, 30% for the academic commentary, 10% for oral presentation).



Indicative Syllabus Content:

- Key features of chaos and complexity theories and their scientific applications in chemistry, biology and human social systems.
- Non-linear dynamics, unpredictability and self-organisation in complex systems as formative principles in nature.
- Life at the 'edge of chaos'.
- Health as an emergent property of complex systems.
- Principles of form and function in cells and the genome as the foundation of coherent order within organisms.
- Applications of chaos and complexity theories to human organisations and creative groups.
- The epistemological and social implications of chaos and complexity theories.
- The implications of chaos and complexity for our sense of creativity, explored through a participatory pedagogy.

Schedule of teaching and learning

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, field trips, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, learning journal, participatory learning methods and personal development planning.

Recommended Texts

- Capra, F. (1997). *The Web of Life*. Flamingo.
- Franses P. (2015) *Time, Light and the Dice of Creation: Through Paradox in Physics to a New Order*. Floris
- Goodwin, B. (1997). *How the Leopard Changed its Spots*. Phoenix
- Goodwin, B. (2007). *Nature's Due*. Floris Books.
- Shaw, P. (2002). *Changing Conversations in Organizations: A Complexity Approach to Change*. Routledge.
- Sole, R. and Goodwin B (2001). *Signs of Life: How Complexity pervades Biology*. Basic Books.
- Stewart, I. (1997). *Does God Play Dice?* Penguin.
- Walker, B. and Salt, D. (2006). *Resilience Thinking*. Island Press.

Module SCH5403: The Living Earth

Module Leader: Stephan Harding
Other Module Staff: Jules Cashford, Anthony Turner.
Dates: Monday 7 November – Tuesday 29 November 2016

Credits: 20 (level 7)

Aims

To explore the self-organising dynamics of ecological communities and the Earth System (Gaia) using a combination of complex systems analysis and experiential approaches to the natural world.

Course content

In this module, students work with concepts of chaos, complexity and emergent self-organisation to explore James Lovelock's Gaia theory, which proposes that the tightly coupled interactions between living beings and their non-living environment give rise to emergent self-regulation at the level of the Earth itself. We will also explore the dynamics of ecological communities, and how these contribute to the health of the planetary system. There will be an integration of rational and intuitive ways of knowing throughout the module.

Assessed learning outcomes

At the end of a module you are expected to be able to:

- Articulate the coherent scientific principles that underlie the dynamics and evolution of ecological communities and the Earth System (Gaia).
- Articulate how Gaia theory combined with the deep ecology approach can lead to a more participatory view of the Earth.
- Critically evaluate the differences between the Gaia hypothesis, Gaia theory and biogeochemistry, based on an understanding of cybernetic principles.
- Critically compare and contrast reductionist and holistic approaches to understanding the Earth.
- Demonstrate an understanding of the interconnections between Gaia Theory, community ecology and deep ecology.
- Self-evaluate and reflect on own values and behaviours in relation to the learning on this module order to improve personal awareness of the Earth as a living system.

Assessment mode

100% coursework comprising: Portfolio: This will be one of the following:

- An academic essay plus oral presentation (indicative weighting: 90% for the academic essay and 10% for oral presentation)
- An artistic project with an academic commentary plus an oral presentation. (indicative weighting: 60% for the artistic project, 30% for the academic commentary, 10% for oral presentation).

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Indicative Syllabus Content

- An introduction to deep ecology as the basis for a philosophical and experiential exploration of the living earth.
- Daisyworld and beyond.
- How globally stable states can emerge from complex interactions between life, rocks, atmosphere and oceans.
- The carbon cycle at different time scales and its effects on Earth's temperature.
- Biological modification of the Earth's albedo.
- Critical steps in the evolution of the Earth.
- Symbiogenesis and symbiosis as integrative principles in the evolution of the Earth.
- The regulation of atmospheric oxygen as a Gaian process.
- The role of biodiversity in maintaining the health of ecological communities and the Earth.
- Climate change from a Gaian perspective.
- Experiencing the life of Gaia through a science-based participatory pedagogy.

Schedule of teaching and learning

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, field trips, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, learning journal, participatory learning methods and personal development planning.

Recommended texts and sources

- Abram, D. (1990). The perceptual implications of Gaia. In A. H Badiner (Ed.), *Dharma Gaia: A harvest of essays in Buddhism and ecology*. Parallax.
- Berry, T (1999) *The Great Work*. Bell Tower
- Capra, F. (1997). *The Web of Life*, Flamingo.
- Gunderson, L.H. and Holling, C.S. (2002) *Panarchy: Understanding Transformations in Human and Natural Systems*. Island Press, Washington DC.
- Harding, S.P. (2009). *Animate Earth: Science, Intuition and Gaia*. Green Books.
- Lenton, T. and Watson, A. (2011). *Revolutions That Made The Earth*. OUP.
- Lenton T. (2016) *Earth System Science. A Very Short Introduction*. OUP.
- Lovelock, J. E. (2000). *Gaia: The Practical Science of Planetary Medicine*, Gaia Books.
- Lovelock, J.E. (1995). *The Ages of Gaia* (2nd ed.) OUP.
- Lovelock, J.E. (2007). *The Revenge of Gaia*. Penguin, Allen Lane.
- Lovelock J.E. (2014) *A Rough Ride to the Future*. Penguin, Allen Lane.
- Kump, L.R., Kasting, J.E. and Crane, R.G. (2010). *The Earth System*. Pearson Prentice Hall.
- Margulis, M. and Sagan, D. (1987). *Microcosmos*. Allen and Unwin.
- Margulis, M. (1984). *Early Life*. Jones and Bartlett.
- Margulis, M. (1998). *Symbiotic Planet*. Weidenfield and Nicholson.
- Needleman J. (2012) *An Unknown World: Notes on the Meaning of the Earth*. Tarcher/Penguin.
- Volk, T. (1997). *Gaia's Body*. Springer Verlag.
- Walker, B. and Salt, D. (2006). *Resilience Thinking*. Island Press.
- Ward, P. and Brownlee, D. (2000). *Rare Earth*. Copernicus.

15.2 Elective Modules

Students select two out of the following three modules offered in Term 2:

SCH5406: Leading in the Midst of Complexity

Module Leader: Tim Crabtree
Other Module Staff: Patricia Shaw
Dates: 9 January – 27 January, 2017
Credits: 20 (level 7)

Aims

- To demonstrate the application of key principles of systemic thinking drawn from ecology, complexity theory, organisational theory, and ecopsychology to leadership and group dynamics for sustainable change;
- Compare and contrast with other leadership approaches;
- Introduce and practice a range of tools and methods in ecological leadership and group facilitation (e.g. systemic mapping; pattern breaking; active listening; reflective inquiry; conflict resolution);
- Apply to case studies to model, practice and critique the methodologies used.

Module and syllabus content

Introduction to principles of an ecological and participatory worldview; applications of complexity theory to leadership and group dynamics for sustainable change; compare and contrast this approach to more 'mechanistic' leadership approaches; experiential practice in creating tools and methods for leadership based on students' own developing insight and experience.

Assessed Learning Outcomes:

At the end of the module the learner will be expected to be able to:

- Demonstrate critical theoretical and experiential understanding of new approaches to leadership and group facilitation rooted in an ecological worldview;
- Compare and contrast with other leadership approaches applied to sustainable change;
- Self-evaluate and reflect on own and others' qualities, strengths and challenges as a leader in order to improve practice;
- Participate effectively with a group as a leader or member;
- Apply skills and knowledge of a range of leadership and facilitation tools and methods to case studies.



Assessment Mode

100% coursework comprising: Portfolio: This can be one of the following:

- An academic essay (weighting: 100%),
- An academic essay with oral presentation (Indicative weighting: 90% for the academic essay, 10% for oral presentation),
- An artistic/design project with an academic commentary (Indicative weighting: 70% for the artistic project, 30% for the academic commentary)
- An artistic/design project with an academic commentary and oral presentation (Indicative weighting: 70% for the artistic project, 20% for the academic commentary, 10% for oral presentation).

Schedule of Teaching and Learning:

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, participatory learning methods.

Recommended Texts and Sources

- Boulton, J. (2001). The Newtonian Paradigm [on-line]
- www.embracingcomplexity.co.uk/Admin/uploadFiles/NewtonianParadigm.pdf
- Brown, M. and Macy, J. Teaching Sustainability: Whole Systems Learning, [on-line] <http://www.joannamacy.net/livingsystems/165-teachingbusinesssustainability.html>
- Fisher D., Rooke, D. and Torbert, W. R. (2001). *Personal & Organisational Transformations Through Action Inquiry*, Edge\Work Press, Boston
- Harrison, O. Opening Space for Emerging Order, www.openspaceworld.com/brief_history.htm
- Heron, J. (1998). *Co-operative Inquiry*, Sage, London
- Heron, J. (1999). *The Complete Facilitator's Handbook*, Kogan Page Ltd.
- Marshall, J. (1999). 'Living Life as Inquiry', *Systemic Practice and Action Research* Vol 12, No. 2.
- Max-Neef, M.A. (1991). *Human Scale Development Conception Application and Further Reflections*, Apex Press, New York.
- Meadows, D. (1997). 'Leverage Points: Places to Intervene in a System', *Whole Earth*, Winter.
- Reason, P. and Bradbury, H. (Eds) (2008). *The Sage Handbook of Action Research*, Sage Publications, London. Chapter 43.
- Reason, P. (2001). Learning and Change through action research. In J. Henry (Ed.), *Creative Management*. Sage, London: Sage.
- Rooke, D. and Torbert, W.R. (2008). 'Seven Transformations of Leadership', *Harvard Business Review*
- Seed, J. Ecopsychology [on-line] <http://www.schumachercollege.org.uk/learning-resources/ecopsychology>
- Seed, J., Macy, J., Naess, A., Fleming, P. (1988). *Thinking Like a Mountain: Towards A Council of All Beings*. New Society Publishers, Philadelphia.
- Shaw, P. (2002). *Changing Conversations in Organizations*, Routledge, London.
- Wheatley, M.J. (2009). *Turning to One Another: Berrett-Koehler*, San Francisco

Module SCH5409: Economics and Development (Beyond Development)

Module Leader: Jonathan Dawson
Other Module Staff: Karambu Ringera, Paula Andreewitch
Dates: 13 February – 3 March 2017
Credits: 20 (level 7)

Short Module Descriptor:

This module will examine the process of development to date, providing a critique of today's dominant paradigm and models and will explore various alternative emerging development paths and strategies that are more socially just and ecologically sustainable.

Aims

This module aims to:

- Analyse and critique the theoretical underpinnings of the dominant neoclassical approach to development;
- Explore new more socially and ecologically oriented approaches to economic development
- Explore the experience of the range of alternative approaches that are emerging.

Module and syllabus content

Current concepts of development and sustainability. The history of globalisation. Impacts of globalisation in terms of equity, power imbalances, global warming, farming, biodiversity and the environment in general. The effects of ecological crises on national economies, especially those of the South. The role of global institutions in driving the process of globalisation. New approaches to development, combining ecology, social equity, fulfilment of human needs and participation. The self-organising principles of ecosystems and how they can be used in the development of sustainable agricultural practice. The emergence of more equitable and sustainable alternative development models.

Assessed Learning Outcomes:

At the end of a module the learner will be expected to be able to:

- Articulate and critique the dominant neoclassical approach to economic development;
- Analyse new more socially and ecologically oriented theoretical approaches to economic development
- Critically appraise the range of emerging alternative approaches to economic development.

Assessment mode

- 100% coursework portfolio comprising:
- Project: This can be an academic essay or an artistic project with an academic commentary (indicative weighting – 70%);
- Presentation: Students will work in teams on a design project. (Indicative weighting – 30%, 15% for presentation and 15% for an accompanying academic commentary.)



Schedule of teaching and learning

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, field trips, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, learning journal, participatory learning methods and personal development planning.

Recommended Texts and Sources

- Amin, S.P., Bond, D.M., Demebele and Sharife K. (2009). *Aid to Africa: Redeemer or Coloniser?*, Fahamu Books & Pambuzuka Press.
- Anderson, S. (2000). *Views from the South: The Effects of Globalization and the WTO on Third World Countries*, International Forum on Globalisation, Food First.
- Bello, W. (2001). *The Future in the Balance: Essays on Globalization and Resistance*, Food First.
- Cavanagh, J. (2004). *Alternatives to Economic Globalisation - A Better World is Possible*, International Forum On Globalization, Berrett-Koehler Publishers.
- Chambers, R. (1997). *Whose Reality Counts?: Putting the First Last*, Intermediate Publications, London.
- Chambers, R. (2008). *Revolutions in Development Inquiry*, Earthscan, London.
- Danaher, K. (2005). *Globalize This!: The Battle Against the World Trade Organization and Corporate Rule*, Common Courage Press.
- Escobar A. (2011). *Encountering Development: The Making and Unmaking of the Third World* . Princeton University Press
- Khor, M. (2002). *Intellectual Property, Biodiversity and Sustainable Development: Resolving the Difficult Issues*, ZED Books, London.
- Norberg-Hodge, H. (2000). *Ancient Futures: Learning From Ladakh*, Wisdom Books
- Patel, R. (2008). *Stuffed and Starved: Markets, Power and the Hidden Battle for the World Food System*, Schwartz Publishing.
- Rosenberg, J. (2001). *The Follies of Globalisation Theory* , Verso.
- Sachs, W. (Ed.) (2009). *The Development Dictionary: A Guide to Knowledge as Power*, ZED Books, London.
- Shiva. V. (1989). *Staying Alive: Women, Ecology and Development*, South End Press
- Swilling, M. and Annecke. E. (2012). *Just Transitions: Explorations of Sustainability in an Unfair World*. Juta, Cape Town.

Module SCH5405: Contemporary Issues in Holistic Science (Mind In Nature)

Module Leader: Stephan Harding
Other Module Staff: Philip Franses, Rupert Sheldrake, Shantena Sabbadini,
Jonathan Horowitz
Dates: 13 March – 31 March, 2017
Credits: 20 (level 7)

Aims

The module aims to examine novel material and concepts in holistic science that shed new light on a variety of areas within mainstream science, together with an exploration of the ecological and ethical implications of such a unified perspective.

Module and syllabus content

Students will explore a selection of scientific issues from the perspective of holistic science, including: the connections between matter and consciousness; quantum physics and its ontological implications, nature as an 'extended mind'; emergent properties and the behaviour of complex systems; ecology; evolution and animal behaviour.

Assessed Learning Outcomes:

At the end of the module the learner will be expected to be able to:

- Explain how insights from holistic science can create new understandings within key areas of mainstream science;
- Articulate how notions about quantities and qualities became dissociated from each other during the development of Western science;
- Present modern ideas in science, psychology and spirituality using the notion of the universe as a unified whole;
- Articulate and reflect upon the ethical and ecological implications of these new insights in relation to the principles of holistic science.

Assessment mode

100% coursework comprising: Portfolio: This can be one of the following:

- An academic essay (weighting: 100%),
- An academic essay with oral presentation (Indicative weighting: 90% for the academic essay, 10% for oral presentation),
- An artistic/design project with an academic commentary (Indicative weighting: 70% for the artistic project, 30% for the academic commentary)
- An artistic/design project with an academic commentary and oral presentation (Indicative weighting: 70% for the artistic project, 20% for the academic commentary, 10% for oral presentation).

Schedule of teaching and learning

A mixed range of teaching and learning methods drawn from the following: Presentations, workshops, seminars, tutorials, case studies, field trips, simulations, exercises and role play, independent study, research methods, action research and reflective inquiry, learning journal, participatory learning methods and personal development planning.



Recommended Texts and Sources

- Abram, D. (2011). *Becoming Animal*. Vintage Press
- Bateson, G. (2002). *Mind in Nature*. Hampton Press
- Bateson, G. (2004). *Angels Fear: Towards an Epistemology of the Sacred*. Hampton Press
- Bekoff, M. (2008). *The Emotional Lives of Animals*. New World Library
- Charlton, N.G. (2008). *Understanding Gregory Bateson*. SUNY
- Harding, S.P. (2009). *Animate Earth: Science, Intuition and Gaia*. Green Books
- Ingold, T. (2011). *Being Alive: Essays on Movement, Knowledge and Description*. Routledge
- de Quincey, C. (2010). *Radical Nature: The Soul of Matter*. Perk Street Press
- Rothenberg, D. (2005). *Why Birds Sing*. Allen Lane.
- Rothenberg, D. (2012). *Survival of the Beautiful*. Bloomsbury
- Sheldrake, R. (2005). *A New Science of Life*. Icon Books
- Sheldrake, R. (2012). *The Science Delusion*. Coronet

15.3 Dissertation

Module Code:	SCH5404
Module Title:	Holistic Science Dissertation
Module Leader:	Stephan Harding
Module Teachers:	Philip Franses, Michael Punt
Credits:	80 (level 7)

Short Module Descriptor:

This module provides students with the opportunity to develop and demonstrate their capacity for independent study in the application of research skills to a topic appropriate to the degree.

Aims

This module aims to:

- Provide an opportunity for students to plan and to pursue in depth a topic of their own interest.
- Extend students' powers of critical evaluation and original thought.
- Develop the skills and confidence necessary to carry out research in the selected topic.

Module and syllabus content

Indicative research topics may include: Goethian science, ecosystem and Earth system dynamics, medicinal properties of plants, complexity theory and organisations, bio-cultural diversity, philosophy of holistic science. Includes a two week workshop in Term 2 on social science research methods.

Assessed learning outcomes

At the end of a module the learner will be expected to be able to:

- Identify a suitable research topic, formulate research questions plan and develop a research design.
- Make use of scholarly reviews and primary resources appropriate to the discipline. (3)Analyse the research problem using an appropriate and ethical methodology.
- Prepare a clear, well presented report or project and/or artefact which communicates the ideas, problems, solutions and results in an accessible manner to both specialist and non-specialist audiences.

Assessment mode

100% coursework: Dissertation: Either 15,000 – 20,000 word dissertation, not including tables, list of references, contents or appendices; or an approved artistic project plus an academic commentary (that may include an oral presentation). You will receive Dissertation Guidelines including information and support on deciding on and planning a research project, and the assessment methods.

Schedule of teaching and learning

Guided independent study; Preparation for scheduled activities using Virtual Learning Environment, module reading list and class materials; preparation for assignments. Detailed formative assessment will be given to students on a one to one basis.



Examples of dissertation topics

1. Water purification and recycling Use of plants, bacteria and flow-forms for purification and recycling of grey water from public buildings and communities. The Dartington Estate is considering plans for implementation of integrated water management together with aesthetic landscape use. This project would look at issues of ecological and hydrological design, implementation, health, art and related matters from a holistic perspective.

2. Birdsong and habitat quality A study of the variability of birdsong repertoire and its relation to the 'health' of a habitat. The objective is to explore possible correlations between habitat quality as assessed by independent criteria (habitat diversity, nest site availability, food abundance, increase in songbird population numbers, etc) and the variety of songs produced by male songbirds of selected species. This will involve recording of songs and identification of variability by sensitive methods of time series analysis as well as more subjective criteria of creativity that are nevertheless recognisable to different observers. Cooperation with the RSPB for data on habitat quality and birdsong population changes will be important in this work.

3. Macro-evolutionary dynamics There is evidence from time series analysis of the fossil record that microevolution (adaptation through random mutation, competition and natural selection) is different in its dynamics from macroevolution (origin and extinction of taxa). Computer models that distinguish between these processes need to be explored in order to clarify what may underlie the differences. Students with computing skills could undertake such a study, in interaction with groups in the UK and abroad who are currently interested in these issues.

4. The dynamics of Gaian processes: does robust behaviour emerge at 'the edge of chaos'? Classical models of global dynamic principles such as those revealed in Lovelock's Daisyworld model show no evidence of a chaotic regime from which robust global order emerges, as suggested in complexity theory. However, this theory is not based on a system of many different components in interaction, though elaborations in this direction have been explored. The project would start with some mathematical description of a complex ecosystem which has a self-defining environment (including geological variables as part of the dynamic) and investigate the nature of the robust states of order that emerge, as an approach to the issues of adaptive dynamics in complex systems.

5. Medicinal properties of plants Students with an interest in health issues and herbal medicine could undertake a study in the use of Goethean methodology for assessing the medicinal properties of plants. This would involve a systematic study of the qualities of different plant species in relation to their healing properties and work with naive subjects to assess their ability to develop a capacity to recognise these properties following a well-defined method of examination. Methods of participatory and experiential research would be used and developed to arrive at intersubjective consensus on qualitative assessment, with independent checks against known chemical and healing properties.

6. Application of concepts from complexity theory to management and organisational change Complexity theory suggests that there is a dynamic attractor at 'the edge of chaos' which confers on complex systems with appropriate organisational structure the capacity for sensitive, innovative response to circumstance. This state has been characterised in physiological time series (e.g., electrocardiograms, blood pressure data) as the signature of health in human subjects, and in the dynamics of social insects (e.g., ant behaviour in the brood chamber). There is also evidence from studies in participatory action research that creativity is characterised by distinctive dynamic behaviour in human groups similar to that described in complex adaptive systems. This could be systematically explored by students with interest in organisational change by recording and analysing appropriate observables in groups undertaking collective research and decision-making.

Recommended texts and sources

- Bryman, A. (2008). *Social Research Methods*. 3rd edn. Oxford: Oxford University Press.
- Hoffman, N. (2007). *Goethe's Science of Living Form; The Artistic Stages*. Adonis Press.
- Mason, J. (2002). *Qualitative Researching*. 2nd edn. London: Sage.
- Moser, C.A. and Kalton, G. (1993). *Survey Methods in Social Investigation*. 3rd edn. Heinemann.
- Reason, P. And Bradbury, H. (eds.) (2008). *The Sage Handbook of Action Research*, Sage Publications, London.
- Shaw, P. (2002). *Changing Conversations in Organizations: A Complexity Approach to Change*. Routledge.
- Wemelsfelder F. (1997). The scientific validity of subjective concepts in models of animal welfare. *Applied Animal Behaviour Science*, (53), 75-88.



APPENDIX A:

Dissertation Guidelines, Submission Information. Ethical Approval Information and Application Form.

A1 DISSERTATION GUIDELINES

In preparing for your dissertation it is critical that you also refer to the Dissertation Module Record for your programme which can be found elsewhere in the student handbook.

Introduction

The Masters dissertation allows students to pursue their research area in depth with the support of a supervisor. The purpose of these guidelines is to provide you with a framework from which to develop your thoughts into an acceptable Master's dissertation.

As you will have read in the earlier chapters of this handbook, each student will choose a dissertation topic approved by faculty at Schumacher College. A supervisor will be assigned to each student. It is the student's responsibility to arrange meetings with their dissertation supervisor and consider the advice they are given. Your supervisor is there to advise and support you, but you yourself are responsible for developing your research question, an appropriate methodology, theoretical framework, and analysing your data in a way that is consistent with Master's level work.

General Guidance

The dissertation is designed to provide students with an opportunity to develop knowledge and understanding in relation to a specific topic area within your chosen area of study. It is highly recommended that as you develop your topic, you select one which is of interest to you, and/or which has practical application to a current or future career. Whilst rewarding, the dissertation can be a long and difficult process, and those students who ignore the previous advice tend to find it longer and more difficult than most. To successfully complete this task, within the dissertation, students must fulfil the following:

- You must identify and justify an appropriate topic within the framework of the programme.
- You must demonstrate critical understanding of the relevant literature, issues, theories, and methodologies within your topic area. This will include drawing upon both academic and non-academic sources of information.
- In addition to demonstrating understanding of the criteria mentioned above, you must also demonstrate an ability to synthesise various sources of information and to derive appropriate conclusions and recommendations.
- The work must be produced to a high standard of English and presentation, and use appropriate referencing.

Dissertation Supervision Guidelines

The purpose of this section is to make you aware of arrangements for dissertation supervision once your proposal has been accepted, particularly with regard to the commencement of written work.

The supervisory team has had lengthy discussion regarding the appropriate type of support to provide students, and the need for consistency in approach. Some institutions provide no reading of draft material for Masters dissertations. At others, supervisors will read material right up until the submission deadline. On the face of it, the latter may be more appealing to you as students. However, the problems with such an open-ended arrangement are twofold:

1. There are discrepancies in how much individual staff members will comment and when they are available (especially given that many staff members take their holidays in the summer months). This can lead to some students being (dis)advantaged over others due to things such as staff leave/other commitments; and
2. As a professional qualification, at Master's level you are expected to undertake and produce your own work, not the work of your supervisor. We believe the following arrangements will provide you with a good level of support in consideration of the above three points.

Supervisors will accept written material to read/comment on up to **two months prior to the submission deadline**. After that students **will not** be able to submit written drafts of their work for comment. By this time, it is expected that you will have produced solid working drafts of your introduction, literature review, and methodology. These Dissertation Guidelines provide you with what all the information you need in terms of what should be included in your dissertation.

After the deadline for the submission of written drafts, students are welcome to continue to contact their supervisors for conversations, but they must not be asked to read and comment on written material. In other words you will continue to have support/guidance on critical issues/questions, but it is up to you to write and present the final document.

Supervisors have agreed that we need to be consistent in our approach, and that even though they may be around in the summer, they are obliged to reject any requests to read written material, as it would not be fair to other students.

Dissertation Primary and Secondary Supervisors

When you have decided on a particular subject area, the module leader will help you identify a supervisor who could be a Schumacher College faculty member, from Plymouth University or an agreed external organisation. Your Primary supervisor is expected to afford you up to 20 hours of supervision time, including time for reading drafts and the final dissertation. Where your supervisor is from an external organisation, their role will be confirmed by the module head and they will be contracted by the College to fulfil the role.

In addition to your supervisors, you are encouraged to draw broadly from others in the field in which you are working. Your research is a good way to make contacts that might be useful further on in your journey. Schumacher College has a flow through of expert teachers from all sorts of fields who will be pleased to help you.

Recommended Texts and Sources:

- Daniel Barbezat Wanting: Teaching Economics as Contemplative Inquiry
- <http://www.contemplativemind.org/archives/1517>
- Bryman, A. (2008) *Social Research Methods*. 3rd edn. Oxford: Oxford University Press.
- IIED (1997) *Valuing the Hidden Harvest: Methodological Approaches for Local level Economic Analysis of Wild Resources*. Research Series Vol 3 No 4.
- David Holmgren, Future Scenarios <http://www.futurescenarios.org/>
- Lyson, Welsh and Torres, Scale of Agricultural Production, Civic Engagement, and Community Welfare
- Mason, J. (2002) *Qualitative Researching*. 2nd edn. London: Sage.
- Moser, C.A. and Kalton, G. (1993) *Survey Methods in Social Investigation*. 3rd edn. London: Heinemann.
- Claire Petitmengin & Michel Bitbol, The Validity of First-Person Descriptions as Authenticity and Coherence File
- Reason P. And Bradbury H. (eds) (2008) *The Sage Handbook of Action Research*, Sage Publications, London.
- Reason P. & H. Bradbury (Eds.), *Handbook of Action Research: Participative Inquiry and Practice* (pp. 1-14). London: Sage 2001 (the copy of this on the website is a typescript)
- Reason, P., & Canney, S. (in preparation 2015). *Action Research and Ecological Practice* In H. Bradbury (Ed.), *Sage Handbook of Action Research*. London: Sage Publications
- Jonathan Smith (Ed.), *Qualitative Psychology: A Practical Guide to Methods*. London: Sage Publications.
- Silverman, D. (ed.) (2004) *Qualitative Research – Theory, Method and Practice* (London: Sage)
- Francisco J. Varela and Jonathan Shear, *First-person Methodologies: What, Why, How?* File 95.2KB PDF document

A2 GUIDELINES ON FORMATTING FOR THE PRODUCTION AND SUBMISSION OF DISSERTATIONS

Cover page

Refer to submission details.

Title page

The title page must provide a title relevant to the topic as well as the student's full name, the name of the course, the college and university and the year of submission.

Abstract

Your abstract must be between 110 and 120 words. It should summarise concisely the topic/phenomenon that was investigated, the key results, and the main conclusions reached.

Acknowledgements

All acknowledgements, including sources of funding, assistance received from colleagues/supervisor appear immediately after the abstract.

Table of contents

This is simply an outline of the headings with relevant page numbers.

List of tables/figures

If you have tables or figures you will want to include a separate page giving their titles and relevant page numbers.

Information relating to all of the following categories is normally required in a dissertation. The following sequence is conventionally regarded as a good model, however, it may not suit all purposes and the precise format of a final dissertation is a matter of personal choice to be discussed and agreed with your supervisors.

Five distinct elements are expected to be included in any dissertation, though it is not strictly necessary that each be addressed in distinct and discrete sections or in the following order:

1. Introduction
2. Literature review
3. Methodology
4. Findings and discussion
5. Conclusion

Followed by references and appendices outlined below.

The following instructions are relevant in those cases where the conventional route to dissertation writing is favoured and the elements listed above are addressed discretely and sequentially.

INTRODUCTION

- The heading for this section is simply **INTRODUCTION** (in upper case and in bold).
- The purpose of this section is to set the stage/context for the main discussion. This may be achieved by discussing previous literature and by highlighting the project's importance and/or value and/or contribution to its related field of study.
- This section should end by outlining the project aims and objectives and by detailing an outline of the structure of the thesis.

LITERATURE REVIEW

- The heading for this section is simply **LITERATURE REVIEW** (in upper case and in bold).
- It provides a critical assessment of the relevant bodies of knowledge and theoretical frameworks pertinent to your research problem. It is not enough simply to report the literature in a “who said what” manner. At Master’s level you are required to synthesise and draw your own conclusions on the key areas within your topic.

METHODOLOGY

- The heading for this section is simply **METHODOLOGY** (in upper case and in bold).
- It should justify and explain both your approach and choice of methods in relation to both primary and secondary data.
- It should be presented in such a way that the reader would be able to replicate what you have done should they wish to do so. Thus, detail is important, as are those things that did not work or could have been improved. Thus, it is essential to demonstrate reflection and critical awareness in your methodology by discussing limitations and issues of reliability and validity.
- The subjects in the study should be described together with the criteria and method of selection
- It should discuss ethical issues and justify ethical approaches where appropriate.

FINDINGS AND DISCUSSION

- The heading for this section is as **‘FINDINGS AND DISCUSSION’** (in upper case and in bold).
- It should present your data and findings in a clear and appropriate Manner, but more importantly you are providing the reader with the analysis of these data/findings and a discussion that is set within the context of the literature review and methodology
- This discussion is subtitled as appropriate. This is the penultimate section of the dissertation. It is here that you demonstrate to the reader your discoveries.

CONCLUSION

- The heading for this section is simply **CONCLUSION** (in upper case and in bold).
- This section can begin with a restatement of the research problem, followed by a summary of the research conducted and the findings.
- It then proceeds to make concluding remarks, offering insightful comments on the research theme, commenting on the contributions that your study makes to the formation of knowledge in the holistic science field, and may also suggest research themes/challenges in years ahead.
- This section need not be limited to one or two paragraphs. The contribution of your project deserves to be insightfully featured here.

TABLES AND FIGURES

- Tables and figures should be numbered and given a brief one-line descriptive title. Example:
Table 1. *UK National Parks*
Figure 1. *The Study Area in the South Hams*
- Data in tables should be presented in columns with non-significant decimal places omitted.
- All table columns should have brief headings
- Tables should be kept as short as possible (i.e. no more than a single side).
- Important details should be footnoted under each table or figure, using alphabetic superscripts to connect the footnote to the relevant term/figure in the table. References to sources of information should appear at the bottom of the table. Example: Source: Smith (2013: 203).
- Tables and figures generated by the author need not be sourced.
- All illustrations or graphical representations should be referred to as figures.

REFERENCES

- It is vitally important that you refer to sources of literature wherever possible. This may be achieved throughout the dissertation's text and/or in a list of references that appear at the end of the dissertation.
- Please note that you should provide a list of only those references that you have cited in your dissertation. You are neither asked for, nor should you provide a bibliography, which is all the Material you consulted during the research process.
- You should follow the **Harvard** system of referencing.

APPENDICES

- You should think carefully why appendices are needed. References, copy of questionnaire, interview transcripts are required but do not 'pad out'.
- Appendices should be numbered, titled and have page numbers that follow from the main text.

FONT SIZE, SPACING AND WORD COUNT

- The report must be typed 1.5 spacing, font size 12, on A4 paper, with at least 2.5cm left hand Margin and with consecutive page numbers.
- The word limit for the dissertation on MA Economics for Transition and MSc Holistic Science is **15,000 to 20,000 words** and on MA Ecological Design Thinking **10,000 – 12,000 words** not including tables, list of references, contents or appendices.

The ability to write clearly and succinctly, but also in a readable style is an important academic skill. With this skill comes the ability to put forward powerful, focussed arguments, to select the best and most relevant case studies to support an argument, and to write in a style accessible to as wide an audience as possible.

A word count need not hamper creativity – it should be something that requires attention in the editing and proof reading stage of writing for students: checking that the completed assignment answers the intended question in a readable, clear and concise manner. If the initial assignment was devised with a word limit in mind, students should have less difficulty producing a highly effective answer which keeps close to that word limit

Ensuring that students keep to the word limit as far as possible also ensures equity between all students doing an assignment. A word limit reflects the scope of the assignment: it gives all students a clear indication of the maximum length of a piece of assessed work, the amount of work expected and therefore how much detail they should go into and how they should allocate time to one piece of assessed work in relation to others.

Beyond academia, certain vocations require people to write clearly and concisely, sometimes to a strict word limit. Therefore in terms of employability, this is a useful skill for students to develop.

OTHER STYLE GUIDELINES

- **Abbreviations/acronyms** – should appear in full on first appearance followed by acronym in brackets. If you are only going to use once or twice then only use full name.
- **Third person** – Normally, the dissertation is written in the third person. Exceptions to this guideline can be discussed with your dissertation supervisor.
- **Terms** – unfamiliar terms, especially those in foreign languages, should appear in *italics*, followed with their meaning in English in parenthesis. Example.....*modiriat* (Management).....
- **Spelling** – ensure you spell check your report using UK spelling.
- **Numbering** – Do not number each paragraph.

It is intended that these dissertation guidelines enable a wide variety of types of investigation. For example, these may include empirical research; contributions to theoretical or experiential knowledge; applied projects (such as the development of a business plan for a social or environmental enterprise) and artistic projects (such a documentary on an issue related to the holistic science). Your supervisor is there to help you structure and plan your work within the dissertation guidelines.

A3 SUBMISSION OF DISSERTATION

Four bound copies and one electronic copy of your dissertation must be submitted

The title of the project, the name of the student and the programme studied must appear on the front cover.

Four bound copies and **one** electronic copy (with the raw data on the VLE/CD or Memory stick) of the dissertation must be submitted to the **postgraduate administrator's office at Schumacher College by 12 noon UK time on Thursday, August 31st, 2017.**

Late submissions, within 24 hours of the deadline, will be capped at 50%.

After 24 hours, or if a submission is not made, the dissertation will be marked as zero.

Sending your dissertations by post. Dissertations posted to the College must be sent by the deadline of **12 noon UK time**; the postmark must clearly demonstrate that the deadline was met. Dissertations must be sent by the most reliable method available; tracked and signed for where possible. We cannot take responsibility for dissertations that go missing in the post and would suggest that you obtain a receipt as proof of postage.

Please note: the failure to present the work in the form specified or another form agreed beforehand by your supervisor will result in marks being lost. Also, students are reminded that academic offences, including plagiarism are treated very seriously by Plymouth University. A student who is proven to have committed an academic offence may be placing his or her degree in jeopardy. It is your responsibility as a student to make sure that you understand what constitutes an academic offence, and in particular, what plagiarism is and how to avoid it. The Plymouth University regulations on plagiarism and other academic offences are included in the faculty postgraduate programmes handbook under assessment and examination offences, including the penalties for offences. If you still do not understand what constitutes an academic offence, please consult your supervisor.

Plagiarism

As a general guide, to avoid plagiarism students should observe the following:

- Use their own words to express widely held concepts and general information obtained from lectures and books.
- When reproducing verbatim extracts from books, lectures or original papers, these should be placed in quotation marks.
- Formally acknowledge (by means of reference) all sources of information.

MARKING OF YOUR DISSERTATION

The dissertation will be read by your supervisor and also by a second marker. If the supervisor and the second marker cannot agree a mark, then a 3rd academic will be asked to act as an independent arbiter and make a judgement on the piece of work.

Once all dissertation marks have been agreed, a selection of dissertations will be sent to the External Examiner for moderation. The selection is agreed with each External Examiner independently but it is most common they request a selection from the top, middle and bottom two marking bands.

Ethical principles for research involving human participants

Following discussions with your supervisor you may be advised or directed to submit for ETHICAL APPROVAL through the College's Ethics Committee. Where required, please submit for approval through the College's Postgraduate Administration team as soon as possible and where possible, no later than end of Term 2.

Informed consent

The researcher should, where possible, inform potential participants in advance of any features of the research that might reasonably be expected to influence their willingness to take part in the study.

Where the research topic is sensitive, the ethical protocol should include verbatim instructions for the informed consent procedure and consent should be obtained in writing.

Where children are concerned, informed consent must be obtained from parents or teachers acting in loco parentis.

Openness and honesty

So far as possible, researchers should be open and honest about the research, its purpose and application.

Some types of research appear to require deception in order to achieve their scientific purpose. Deception will be approved in experimental procedures only if the following conditions are met:

- Deception is completely unavoidable if the purpose of the research is to be achieved.
- The research objective has strong scientific merit.
- Any potential harm arising from the proposed deception can be effectively neutralised or reversed by the proposed debriefing procedures (see section 5).

Failing to inform participants of the specific purpose of the study at the outset is not normally considered to be deception, provided that adequate informed consent and debriefing procedures are proposed.

Covert observation should be resorted to only where it is impossible to use other methods to obtain essential data. Ideally, where informed consent has not been obtained prior to the research it should be obtained post hoc.

Right to withdraw

Where possible, participants should be informed at the outset of the study that they have the right to withdraw at any time without penalty.

In the case of children, those acting in loco parentis or the children themselves if of sufficient understanding, shall be informed of the right to withdraw from participation in the study.

Protection from harm

Researchers must endeavour to protect participants from physical and psychological harm at all times during the investigation.

Note that where stressful or hazardous procedures are concerned, obtaining informed consent (1) whilst essential, does not absolve the researcher from responsibility for protecting the participant. In such cases, the ethical protocol must specify the means by which the participant will be protected, e.g. by the availability of qualified medical assistance.

Where physical or mental harm nevertheless does result from research procedure, investigators are obliged to take action to remedy the problems created.

Debriefing

Researchers should, where possible, provide an account of the purpose of the study as well as its procedures. If this is not possible at the outset, then ideally it should be provided on completion of the study.

Confidentiality

Except with the consent of the participant, researchers are required to ensure confidentiality of the participant's identity and data throughout the conduct and reporting of the research.

Ethical protocols may need to specify procedures for how this will be achieved. For example, transcriptions of the interviews may be encoded by the secretary so that no written record of the participant's name and data exist side by side. Where records are held on computer, the Data Protection Act also applies.

Please note: One copy of your dissertation is held and available publically in the College library.

Where Researchers have obtained permission to access sensitive Organisational information that must remain confidential, the Researcher must agree and complete a 'Confidential Dissertation Form' outlining the agreed distribution, handling of the final dissertation and its ultimate destruction. This should be agreed in line with both the Organisation and Schumacher College. Forms can be obtained from the Postgraduate Administration Office or on the Open area of the V.L.E.

Ethical principles of professional bodies

This set of principles is generic and not exhaustive of considerations which apply in all disciplines. Where relevant professional bodies have published their own guidelines and principles, these must be followed and the current principles interpreted and extended as necessary in this context.

Application for Ethical Approval of Research: Postgraduate Dissertations

Name of Student:	
Name of Supervisor:	
Dates and Duration of the research project:	
Aims and objectives of the research project:	
<p>Brief description of research methods and procedures:</p> <p>Specify subject populations and recruitment method. Please indicate also any ethically sensitive aspects of the methods. Continue on additional sheets if required.</p>	<p>a) Participants – inclusion/exclusion criteria</p> <p>(b) Method of recruitment</p>
<p>Brief description of research methods and procedures:</p>	<p>(c) Details of research methods</p>

Declaration

To the best of our knowledge and belief, this research conforms to the ethical principles laid down by Plymouth University.

Student: Signed: Date:
Please print your name.

Supervisor: Signed: Date:
Please print your name.

Schumacher College

Schumacher
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PARTNERSHIP
WITH
PLYMOUTH
UNIVERSITY

Dartington

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