UCL CENTRE FOR ADVANCED SPATIAL ANALYSIS
THE BARTLETT

UCL
MRes
Advanced
Spatial Analysis
& Visualisation

One Year Full - Time

Up to 5 years flexible / modular study

APPLY NOW FOR SEPTEMBER ENTRY

The MRes in Advanced Spatial Analysis and Visualisation (ASAV) reflects the current state of play in geographic, urban and architectural information systems with an emphasis on visualisation, analysis and modelling. Taught at the Centre for Advanced Spatial Analysis, it is an innovative and exciting opportunity to study at UCL - with an MRes acting as a pathway to a PhD or further career in ASAV.

EDUCATIONAL AIMS OF THE PROGRAMME

The programme aims to provide training in the principles and skills of social and spatial research. Its aims include a strong understanding of qualitative and quantitative research methodology and methods of data collection and analysis to support and enable independent and group research projects. In addition to focusing on research skills, subject-specific modules provide students with the opportunity to develop excellence in spatial analysis and visualisation, and the specific skill set to engage and contribute to current debates on social and spatial systems.

HOW TO APPLY

You can apply for this course online - follow the links on our website for full details.

ENTRY REQUIREMENTS

A UK Bachelor's degree in an appropriate subject, awarded with First or Upper Second Class Honours, or an overseas qualification of an equivalent standard from a university or educational establishment of university rank is required for entry to this course. Candidates who hold a professional or other qualification obtained by written examinations and approved by UCL, together with at least three years of appropriate professional experience, may also be admitted to the Degree.

The MRes ASAV teaches students technical, mathematical and programming skills through a series of core and optional modules. There are no prerequisites for these courses - we're looking for students with the enthusiasm and talent to branch out and absorb new ideas alongside more experienced scientists and programmers.

www.casa.ucl.ac.uk

COURSE CONTENT

There are 6 mandatory modules to the MRes taught over two days for full time students. A suggested route for part-time / flexible study over two years is shown below. The days and times listed are provisional.

TERM ONE	P/T Yr

COMMUNICATION SKILLS
Dr Martin Zaltz Austwick & Dr Cliff Elwell **(1)**

Led by CASA and the UCL Energy Institute, Communication Skills covers the key elements of academic and professional communication: critical reading and citation, academic writing, public presentation, professional communication and online profile, public engagement and rapid dissemination (blogging and social media). **15 credits** [**Wednesday 10-12pm**]

G.I. SYSTEMS AND SCIENCE
Dr James Cheshire **(1)**

This module presents an overview of the core organising concepts and techniques of Geographic Information Systems, and the software and analysis systems that are integral to their effective deployment in advanced spatial analysis. **15 credits** [**Wednesday 1-4pm**]

KNOWLEDGE POWER
Professor Sir Alan Wilson **(2)**

The module introduces the students to routes beyond traditional disciplines to explore core interdisciplinary skills relating to the notions of superconcepts and methodologies on new ways to undertake research. **15 credits** [**Thursday 4-6pm**]

TERM TWO	P/T Yr

DIGITAL VISUALISATION
Dr Andrew Hudson-Smith & Dr Martin Zaltz Austwick **(2)**

This module teaches visualisation methods as a way of understanding complex data, developing new modelling tools, and communicating research outcomes. Data-based visualisations using emerging web technologies, model-based visualisation and the use of virtual environments and 3D modelling are explored, providing students with a flexible intellectual toolkit for future research and professional development.
30 credits [**Wednesday 10-1pm**]

DISSERTATION
(2)

The module runs alongside the other modules on the course, to develop the students' ability to devise research proposals, collect, analyse data, communicate findings and ultimately write up a self-standing piece of work. The dissertation is research-based and student-led, ensuring a close fit with students' professional and intellectual interests, and representing a substantial achievement as it draws in every aspect of the candidates' MRes Studies. **90 credits** [**Wednesday 3-4pm, self study during Summer**]

SPATIAL MODELLING AND SIMULATION
Professor Sir Alan Wilson & Professor Michael Batty **(1)**

The module introduces a broad spectrum of modelling techniques currently being applied at the city scale. It teaches the model-building process within planning and decision support environments, including examples from land-use transportation modelling, spatial interaction modelling, Cellular Automata and Agent-Based Modelling. **15 credits** [**Thursday 4-6pm**]

TERM THREE	P/T Yr

DIGITAL VISUALISATION
Dr Andrew Hudson-Smith & Dr Martin Zaltz Austwick **(2)**

Continued from Term 2. **30 credits** [**Wednesday 10-1pm**]

Dr Andrew Hudson-Smith FRSA is Director and Deputy Chair of the UCL Centre for Advanced Spatial Analysis and Director of the MRes in Advanced Spatial Analysis and Visualisation. He is also author of the digitalurban site **www.digitalurban.org**

Professor Michael Batty CBE FBA FRS is Chairman of CASA which he set up in 1995. His recent books **Cities and Complexity** (MIT Press, Cambridge, MA, 2005) and the edited volume **Virtual Geographic Environments** (Science Press, Beijing, China, 2009) indicate his research interest in developing a science of cities. He is editor of the journal **Environment and Planning B: Planning and Design**.

Sir Alan Wilson FBA FRS is Professor of Urban and Regional Systems. He works on computer models of the evolution of cities and regions and global dynamics. His book, **Knowledge Power**, was published by Routledge in 2010 and **The Science of Cities and Regions** by Springer in 2012.

Dr Martin Zaltz Austwick holds an undergraduate degree in Physics and a PhD in Quantum Computing and Nanotechnology, and spent four years in Medical Laser Physics before joining CASA in 2010. Martin is Course co-ordinator of the MRes.

Dr James Cheshire completed his PhD in the UCL Department of Geography and his interests concern the analysis and visualisation of large population datasets.

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