

**Title: Statistical and Professional Training Programme -
version 8**Categorisation
Business Plan\Work Plan

Originator: Heather Gregory on 13/07/2007

Status: **Default****1. Executive Summary**

This paper details the Statistical Training Programme and the statistical training currently available from numeracy through to accredited statistical courses that lead to qualifications. It provides information on how the Programme relates to development through the levels of the Business Operations job family, as well as entry into the Research, Analysis and Statistical (RAS) job family, and progression in that family to postgraduate studies in the MSc in Official Statistics. Where appropriate, the Programme links with central initiatives which have been developed to improve key skills within government. The Statistical Training Unit (STU) within Methodology Directorate is leading this work.

The programme is primarily funded through the Methodology Directorate baseline (core) funding with the exception of marginal costs being recovered from Other Government Departments (OGDs) for staff attending the RSS Ordinary and ONS Methodology Workshops. The directorate has considered offering more courses outside ONS, but feel that this detracts from the primary directorate function of developing methodology skills for ONS programmes. Substantial additions or enhancements to the existing programme will require an additional source of funding. In line with current HR initiatives, enhancements and efficiencies to the programme are being considered through computer-based training and e-learning.

2. Introduction

This paper brings together existing statistical training into a Statistical Training Programme. It covers how the training fits into a corporate programme of statistical learning which meets the demands of the new ONS job family structure for Business Operations and Research Analysis and Statistics. The document was prepared so staff and management are able to assess how statistical training currently available meets the needs of new recruits, staff transferring between business areas or into relocated posts. The statistical training it describes is available to all staff. It is recognised that the Statistical Training Programme may not fully meet the needs of Directorates at all ONS sites. To address this, a working group will be set up to consider competency based statistical training using the ONS competency frameworks and job family structures. Specific competencies will be identified for each statistical post in the ONS and the needs of the postholder met through a blended learning approach, which will include formal statistical training courses. A further document will set out the findings of the group and make proposals for the development of competency based statistical training in the ONS.

3. Statistical Training Programme Objectives

The objective of this Programme is to provide the full range of statistical training necessary to develop the skills required for each level of competency in the Business Operations and RAS job families. The modular nature of the training will allow staff to "specialise" in specific skills at varying levels appropriate for their job. It will also ensure staff moving into relocated posts have the opportunity to develop the skills they need to be effective in their new posts. In particular, it will reinforce the requirements of the statistical modernisation programme to increase reliance on statistically skilled staff with fewer data processing staff.

This paper also complements the GSS Continuing Professional Development (CPD) policy, which was introduced across the GSS in April 2006. It provides access to the learning opportunities required to fulfil the statistical competencies of an individual's professional development. CPD learning activities include the training courses and workshops of the type offered by the Programme. The purpose of this document is, however, to provide information on training currently available that can be incorporated into an individual's CPD log, not to discuss how ONS supports other aspects of CPD. For more information on CPD, see the link at Appendix (Item 1).

This paper discusses statistical training appropriate for the Business Operations job family in Section 4 and that for the RAS job family in Section 5. Section 6 graphically illustrates the flow through the varying levels of training from basic to advanced, and the links between training that meets the needs of both job families. Information on the courses are provided in an order that matches the illustration in Section 6. The Appendix provides information on supplementary material (eg website links) which complement the contents of this document.

4. Development opportunities available to all ONS Staff

To meet the needs of a modernised statistical office, ONS needs to develop existing staff either as experts in the Business Operations job family or for entry into the RAS job family. Entry into the RAS job family has been identified as being at a level equivalent to the Royal Statistical Society (RSS) Higher Certificate or appropriate degree level. This Statistical Training Programme was put in place to provide ONS staff and, where appropriate, staff from Other Government Departments (OGDs) with a clear route to acquiring this knowledge. This section describes all the courses that are available. Staff will begin training based on their current skill level so that not all staff will require each course in the Programme. The Programme includes:

4.1 Numeracy Skills Training (Audience - ONS)

A Government Report entitled "Making Mathematics Count" (see <http://www.mathsinquiry.org.uk/>) was published in February 2004 in response to concerns raised by employers and universities about the decline in the mathematical skills of school leavers. The report findings are leading to improvements in the way mathematics is taught in schools and in further education. It has also resulted in adult numeracy skills being reviewed with the recommendation that employers should raise the skills base of new employees. The RSS also promotes the idea that an appropriate level of statistical literacy is an essential life skill for everyone.

In response to this, the STU has identified that many staff throughout ONS do not have the numeracy skills to calculate percentages, round numbers effectively, calculate means or medians of a set of data, or assess whether the results from a set of data look correct. This lack of knowledge is placing a risk upon key ONS outputs so demand for Numeracy Skills training is high. An assessment has been conducted into courses that are already available externally; however, none have been found to match the skillset required. A new course that builds on available materials ONS needs has been developed with two levels of Numeracy Skills training (intermediate and higher). Sources have provided the funding required for the development and Numeracy Skills Training Courses are being piloted in their business areas in 2006/2007. If successful, the courses will then be rolled out across the ONS.

4.2 RSS Ordinary Certificate (Audience - ONS and OGDs)

Prerequisite for this course is a Maths GCSE, or equivalent. This course is delivered by the STU across the ONS, with OGDs invited to attend. Over the past few years, there has been an increasing demand for the RSS Ordinary from OGDs throughout the UK. As a result, a distance learning package was developed in 2003 to supplement the classroom based delivery, which takes place at all four ONS sites. The course covers the whole survey methodology and is split into the following modules:

Module 1 - Research Methods, Data Collection and Questionnaire Design

Module 2 - Sampling Frames, methods and errors

Module 3 - Condensing, Presenting and Summarising Data

Module 4 - Probability

Module 5 - Time Series and Index Numbers

Module 6 - Regression and Correlation

Module 3 of the RSS Ordinary has been identified to contain many of the skills that were identified for higher numeracy. Therefore, from the 2006/2007 academic year, vacant spaces on this module will be offered to staff as higher Numeracy Skills training to build on the intermediate Numeracy training described in paragraph 4.1.

Any RSS Ordinary Modules that are not full are then advertised on the Daily so staff can pick subjects to suit their individual learning needs on a "first come - first served" basis. This flexible approach has the benefit of ensuring the maximum number of attendees on courses where training on a specific subject is required. Where there is sufficient demand STU will consider running additional modules at specific sites. See Appendix (Item 2) for further details. The cost of the RSS Ordinary course for ONS students is currently met from the MD baseline but business areas pay the examination fees.

4.3 A-Level Maths with Statistics (Audience - ONS)

The prerequisite for this course is a Maths GCSE/O level or equivalent. A two year pilot commenced in September 2005 to meet a demand for an A-Level in Maths with Statistics at the Newport site. Newport was selected solely due to the large demand identified at this site for an A-Level and the very low fees charged by the external providers, Coleg Gwent. At the time this could not be met at other sites. A course evaluation has concluded that there are clear business benefits in providing this course and

recommended its continuation. An A-level Maths will be provided in Titchfield from September 2007 by St Vincent College in Gosport. The cost of this course will be met by business areas.

STU found through the evaluation of the RSS Higher that there was a significant gap between the Maths knowledge required for the RSS Ordinary and Higher Certificates. The evaluation also found that many students studying this course had difficulty grasping the topics covered in the RSS Higher because of this gap. The Maths knowledge required for the RSS Higher is covered by the A Level in Maths and Statistics and thus this course fills the gap in statistical learning between the Ordinary and the Higher Certificates.

4.4 A-Level Economics (Audience - ONS)

STU has liaised with Coleg Gwent in Newport to organise this course to meet a demand on the Newport site, particularly from staff who have moved into National Accounts work. The course tutor visited the site and presented the course syllabus. There were sufficient numbers enrolling on the course for it to be viable and delivery commenced in September 2006. There is no prerequisite for this course other than attendees having a keen interest in the economy and relevant job experience. The business benefits of continuing to provide the course will be evaluated at the end of the academic year. The small cost of this course is met by business areas.

4.5 Statistical Analyst (SA) Scheme (Audience - ONS)

The Statistical Analyst (SA) Scheme is delivered by Methodology experts and forms part of the Intermediate Level Methodology Workshop Programme (paragraph 5.1 provides full details on the two levels of the ONS Methodology Workshop Programme). The prerequisite for the SA Scheme is the RSS Ordinary or equivalent (for example A-level in Maths and Statistics and experience of the survey process). The course is very popular, providing those who have obtained the RSS Ordinary Certificate with further training and an internally recognised qualification when they complete the six modules in the Scheme and pass the associated assignments. Although the SA Scheme is currently only offered on the Newport site, as part of a more corporate programme, the Scheme will be rolled out in Titchfield in September 2007. Whilst some of the existing modules will be appropriate, others will need developing to meet Titchfield training requirements. The six modules currently offered to Newport staff are: Sampling and the IDBR; Validation and Imputation; Estimation; Outliers; Seasonal Adjustment and Statistical Disclosure Control. The qualification will ensure a higher level of basic skills for staff who are seeking a job change and/or promotion. The SA Scheme is currently funded from the MD baseline.

4.6 RSS Higher Certificate (Audience - ONS and OGDs)

The prerequisite for this course is the RSS Ordinary Certificate and participants will have a better understanding of the course material if they have an A-Level in Maths with Statistics, or equivalent. The RSS Higher has been delivered across the ONS and OGDs via distance learning provided by Southampton University for many years. It has not been a popular course and participants have found it increasingly difficult to obtain the qualification. A review of the syllabus and course content have resulted in a new modular structure being introduced in 2007. Candidates must take four core modules and two optional to acquire the full qualification, although participants may simply take a module as a certified short course for professional development. The training is currently provided by the University of Southampton via distance learning and funded by business

areas.

4.7 Training in Application of Standard Tools (Audience - ONS and OGDs)

As part of modernisation, and to meet ongoing needs, MD is providing training on the application of new standard tools for business areas as they are being rolled out. Currently training is provided on time series functions in WinCSDB and X12ARIMA: on statistical disclosure control in Introductory Tau Argus and Advanced Tau Argus; on estimation in Generalised Estimation System (GES); and on edit and imputation with CANCEIS and Banff in the Edit and Imputation Toolkit Training. This training is covered by the MD baseline. See Appendix (Item 3) for details of this training.

4.8 Statistical training conducted by Business Areas (Audience ONS)

Some Directorates deliver bespoke statistical training for their staff. This is designed to develop the specific knowledge and skills required for posts in a particular business area. Examples are:

a. National Accounts Training

The National Accounts Training programme is run by the National Accounts Group at ONS. The programme consists of a number of one and two day training modules which have been designed to develop the knowledge and skills used in the compilation and coordination of the accounts. The programme is delivered using in-house day release training at the ONS. First the 'Introduction to National Accounts' gives an overview of the area and introduces the key concepts and definitions. This course is then followed by a series of modules which look in more detail at how the accounts and the data are put together. Wider issues, such as how the national accounts contribute to economic debate, are also covered. See Appendix (Item 4) for details.

b. Interpreting the Economy

The Economic Analysis Division offers a two day module that provides an introduction to the macro-economic framework and explains the key economic terminology. Participants develop a practical understanding of current economic events through the use and interpretation of National Statistics. This course assumes no previous training in economics. However, people with some knowledge may still find it of interest. The first morning is largely spent explaining the basic building blocks of economics - supply and demand etc. The knowledge of these tools is necessary to understand the rest of the course. See Appendix (Item 5) for details.

c. Demography Training

Currently, there is no specific, on-going, training in demography offered to staff. However, the ONS Centre for Demography has identified it as an area which they will wish to evolve, with local universities, to raise the level of expertise available on the Titchfield site. Southampton University, in particular, do much lecturing in the subject. In 2006, ONSCD commissioned Southampton University to run a general research course for staff in the Centre. In 2007, a similar course was run but additionally for the Titchfield site it included a separate session on basic demographic techniques. The joint aim of ONSCD/MD is to replace this research course with the statistical analyst scheme from 2008/09 onwards on the site.

The current MSc in official statistics does allow some study in demographic methods and there are also short term courses in demography offered by Southampton University -

some further, joint training initiatives between the University and ONS are likely in the future."

5. Development opportunities specifically designed for the RAS job family

The Statistical Training Programme offers the ONS Methodology Workshop Programme, MSc modules (certificate) and/or an MSc in Official Statistics at the University of Southampton or University of London for staff who are in the RAS job family. Additionally, STU receives information on short courses and other external courses that might meet needs of staff at different levels within the RAS job family. A selection of these are listed in paragraph 5.3.

5.1 ONS Methodology Workshop Programme (Audience - ONS and OGDs)

Following extensive evaluation of the 2006 ONS Methodology Workshop Programme, the 2007 Programme has been re-developed into two distinct levels - Intermediate and Higher. The introduction of another level of training provides a more flexible approach to the training needs of the ONS and the wider GSS. The STU can offer advice on which level is most appropriate. The Workshops are funded from the MD baseline for ONS staff with a charge for attendees from OGDs.

The Higher Level Workshops mainly take place at London Drummond Gate in the Spring and meet the needs of more experienced staff. The prerequisite is a degree in Maths or Statistics, or equivalent, and a good working knowledge of the subject. Modules include:

- Sample design and Estimation - 1 day
- Data Collection - 1 day
- Index Numbers - 1 day
- Time Series - X11Arima - 1.5 days
- Process Editing and Imputation - 1 day
- Statistical Disclosure Control - 1 day

The Intermediate Level Workshops cover the requirements for the Statistical Analyst (SA) Scheme (see paragraph 4.5 for details) but staff can also attend individual modules. Although, only currently available in Newport, some modules will be rolled out in Titchfield in September 2007. The prerequisite is GCSE in Maths/RSS Ordinary Certificate or equivalent. Intermediate level Workshops are not available for Data Collection Methodology, Statistical Disclosure Control and Time Series - X11ARIMA. These are covered by the Higher Level Workshops which run twice a year. The current Intermediate Level Workshops are:

- Sampling and IDBR - 0.5 day
- Estimation - 0.5 day
- Outliers - 0.5 day
- Process Editing and Imputation - 1 day

An additional three courses on Presentation of Data, Small Area Estimation and Inference Testing and Statistical Significance are in the process of being developed and will be added to the Higher Level Workshop timetable during Spring 2008. It is planned to

extend the Workshop Programme over time to cover the whole Statistical Value Chain. Full information on the ONS Methodology Workshop Programme is in the Appendix (Item 7).

5.2 Government Economic Service (GES) training.

The GES organises and commissions a wide range of training for its members, mainly centred on London. It includes:

- Training modules on specific technical issues which are commonly used in economic analysis for policy.
- Workshops on techniques, either as ‘refresher’ days or on demand from departments
- Seminars by leading academics covering issues which are particularly relevant to current challenges, or new developments in economic thinking.

Appendix (Item 8) provides more detail.

5.3 External Short Courses (Audience - ONS and OGDs and others - costs on individual websites)

There are a number of external training courses available that meet the needs of the Business Operations and Research Analysis and Statistics job families. All external courses are funded by business areas. These courses can be used in two ways:

- they can serve as short introductory courses in a methodological area for staff new to the field; or
- they may be the means for more senior staff to get updated with recent changes in the field.

Thus, they can correspond to different levels of development in the two job families. Individuals interested in these courses should examine how they relate to the MD Workshops and to MSc courses/modules) to determine how they fit into their personal development programme. Those listed below are recommended sources of such courses.

a. Courses in Applied Social Surveys (CASS). The University of Southampton offers a programme of short courses in survey methods. It covers all aspects of the quantitative survey process from design to data collection and analysis. The courses aim to provide guidance and workshop practice for researchers who face practical survey tasks and decisions, such as how to draw a sample, how to design a questionnaire and how to analyse a data set. The courses are generally one to two days in length. Appendix (Item 9) provides a link to the courses.

b. Economic and Social Research Centre (ESRC). The Economic and Social Research Centre provides a focal point for research, training and capacity building activities, aimed at promoting a step change in the quality and range of methodological skills and techniques used by the UK social science community. The Centre’s training and capacity building programme has two broad aims:

- upgrading the quality and range of the methodological skills-base across the general social science community; and

- facilitating the diffusion of cutting-edge methodological expertise to a new generation of social scientists.

Appendix (Item 10) provides a link to these courses.

c. University of Manchester short courses. The Cathie Marsh Centre for Census and Survey Research (CCSR), University of Manchester offers a wide range of short course training in quantitative research methods and data analysis. Courses are offered at introductory, intermediate and advanced level. Full details of the courses can be found in the weblink in Appendix (Item 11).

d. Joint Program in Survey Methodology (JPSM). The Joint Program in Survey Methodology in the US offers a comprehensive set of short courses. These are generally offered in the US, but it is very conceivable that the programme would be willing to offer any of the courses in the UK given a sufficient enrolment. They may provide courses that are not available otherwise in the UK. Appendix (Item 12) provides a link to these courses. STU will be investigating the possibility of making some of these courses available in the UK.

5.5 European Statistical Training Programme (ONS and OGDs - cost on individual website).

The European Statistical Training Programme is a tool for transferring knowledge and best practice within the European Statistical System. It supports the quality of European Statistics, their harmonisation and comparability as well as the transfer of new tools, methods and technology between the different European countries. It also supports national training schemes by addressing demands which cannot be met nationally, gives access to international experts in relevant fields to share their knowledge and expertise and promotes cooperation and exchange of skills and experience. Eurostat defines the training policy and coordinates the contracting, organisational framework and course programme. Courses are delivered by Eurostat and member states, have an international flavour and mirror real work situations. Internal problems in Eurostat resulted in the European Statistical Training Programme being suspended for a period but new courses are now being developed and offered to NSIs. STU is advised of these courses on a regular basis and advertises them in the Daily. These courses meet needs of levels two to four in the RAS job family and, in some cases, level 4 of the Business Operations job family.

5.6 MSc in Official Statistics (Audience - ONS and OGDs)

The MSc is a joint venture between Southampton University and the ONS. The MSc programme is designed to provide the specialist knowledge which is central to the conduct of the professional statistical work within government. Through part-time study, the course enables postgraduate students to strengthen and update their professional skills and knowledge. Individual units of the MSc in Official Statistics can be taken as stand alone modules as part of continuing professional development.

The MSc Diploma course has been redesigned to complement the broader recruitment strategy of the Government Statistical Service. There are eight compulsory units that do not require as much technical knowledge as the former core with an additional eight

courses selected from a broad list of topics. The compulsory units are:

- Introduction to Survey Methods
- Introduction to Sample Design and Estimation
- Regression Analysis
- Time Series
- Demographic Methods
- Index Numbers
- Evaluation and Monitoring
- Elements of Official Statistics

The MSc Postgraduate Certificate is suitable for students who do not want to, or are unable to, complete the Diploma course. This requires students to complete eight units in total, including four from the compulsory list. There is no restriction on choice. Information on the new Postgraduate Certificate is in the Appendix (Item 13).

More information on the MSc and other programmes at the University of Southampton can be found on their website (Appendix - Item 14). All elements of the MSc are paid by the business area. The MSc meets level 4 training for those in the RAS job family and is funded by business areas.

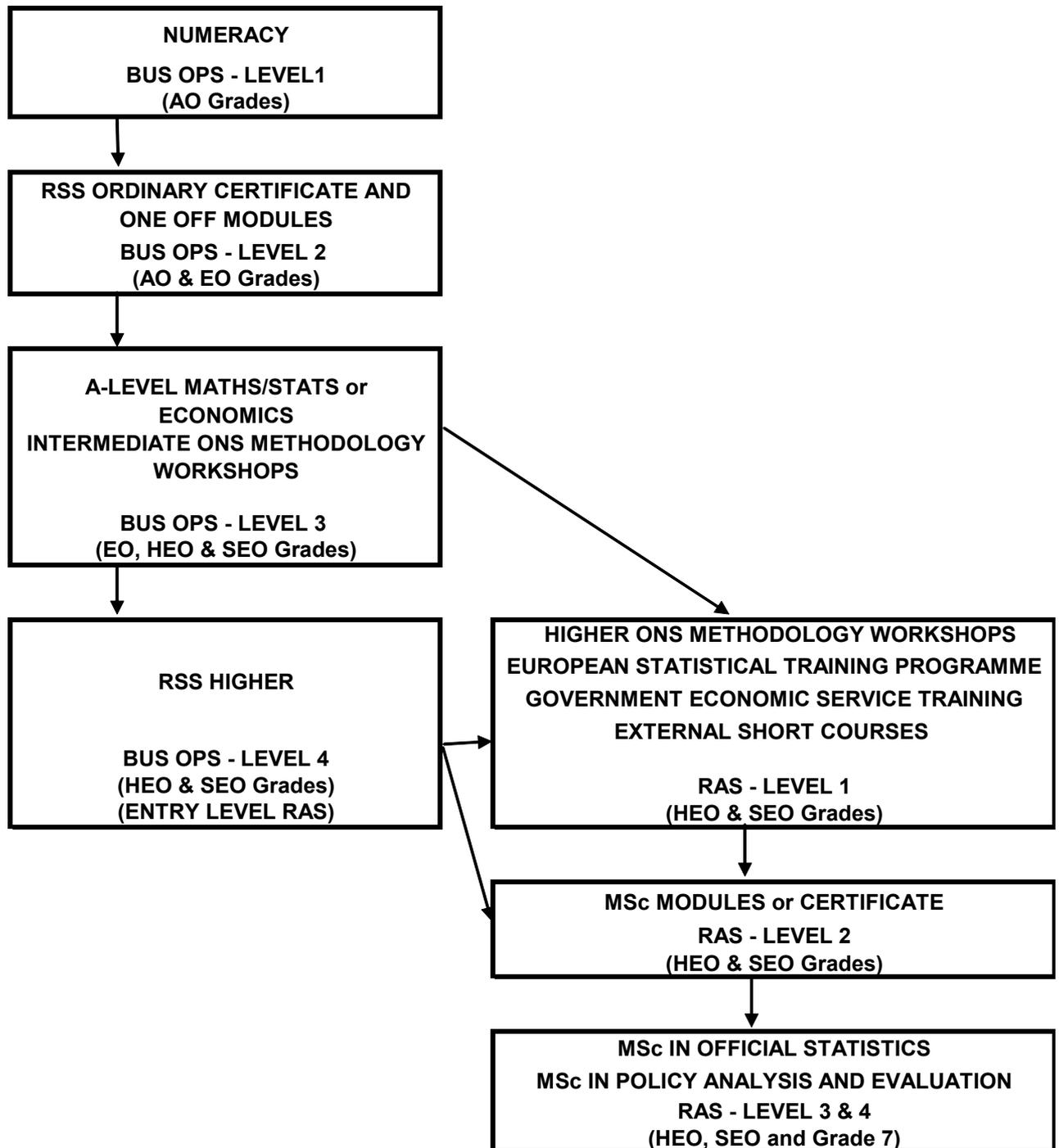
5.7 MSc in Policy Analysis and Evaluation (Audience - ONS and OGDs and others - costs on website)

Government social researchers are able to apply for a Masters qualification in Policy Analysis and Evaluation run by the Government Social Research Unit and the Institute of Education at the University of London. This is a new modular degree to be completed part-time over two years. It covers research methods used in drawing up an evidence base for designing, critiquing and evaluating government policies, as well as critiquing, evaluating and analysing the effects of policies. The overall emphasis of this degree is on quantitative research methods. More information is on the University of London website (Appendix - item 15). Participation in this MSc programme is paid by the business area.

6. Summary

This diagram on the next page shows the relationships between the different types of statistical training offered by the Methodology Directorate and coordinated by the Statistical Training Unit in the directorate. The diagram also shows how the courses relate to the different levels of competency in the two job families - Business Operations and RAS. It is a guide for which courses might meet the needs of different levels of staff.

STATISTICAL TRAINING COURSES MAPPED AGAINST JOB FAMILY LEVELS



Grades indicate the minimum level of the staff usually attending the learning event. This can vary according to qualifications and experience.

Appendices

1. Information on the Continuous Professional Development Programme
<http://www.knowledgenetwork.gsi.gov.uk/statnet/statnet.nsf/RefDocs/KANN-6JDCRL?OpenDocument>
2. Information about the RSS Ordinary certificate course
<http://nswebcopy/about/training/rss.asp>; costs for numeracy and RSS ordinary and higher certificates 
3. Training in Application of Standard Tools 
4. National Accounts Training Programme 
5. Interpreting the Economy training 
6. Social Research training 
7. ONS Methodology Workshops ; costs 
8. Government Economic Service training 
9. University of Southampton - Courses in Applied Social Surveys
<http://www.s3ri.soton.ac.uk/cass/programme.php>
10. Economic and Social Research Council National Centre for Research Methods
<http://www.ncrm.ac.uk/>
11. Cathie Marsh Centre for Census and Survey Research
<http://www.ccsr.ac.uk/courses/external/2006-2007/>
12. Joint Program in Survey Methodology Short Courses <http://www.jpsm.org> and go to "Short Courses"
- 13 Proposal for the future structure of the MSc in Official Statistics

Proposed New Structure for the MSc.; costs 
14. University of Southampton - MSc in Official Statistics (including short courses).
<http://www.socstats.soton.ac.uk/moffstat/>
15. University of London, Government Social Research Unit (GSRU) and the Institute of Education - MSc in Policy Analysis and Evaluation <http://www.gsr.gov.uk/>

Heather Gregory

Head of Statistical Training

MD Newport

Last Modified : 17/08/2007 09:21:04

Record Information

File Plan Information

Document ID:	HERYNG13801251240200704287
Record ID:	KAESNG17834604672200721058
Full Folder Name(s):	Methodology and Statistical Development\Cross-business and Support
Full Folder Number(s):	0400\0410

Declaration and Disposal Information

Declared On:	17/08/2007 09:21:05
Disposal Details:	No document level disposal is set for this record
ERMS Record Type:	Programme Records
ERMS Record Sub Type:	Reports/Plans

Record Meta Data

Record Owner:	Kate Davies/ONS
Meta Data Field 1:	
Meta Data Field 2:	
Meta Data Field 3:	