

## Notes for guidance for Graduate Statistician (GradStat) applicants

Graduate Statistician (GradStat) is a grade of professional membership of the Society. It provides formal recognition of a member's statistical qualifications.

The Society offers two routes to Graduate Statistician (GradStat) status – a **standard route** and a **competence based route**.

### The GradStat Standard Route:

The criteria for GradStat are the same as the academic criteria for the standard route to Chartered Statistician (CStat) status.

If you are not sure whether your qualifications fulfil the criteria, we would advise you to complete a mapping grid that allows you to provide detail as to how you feel the modules taken meet the full criteria listed below:

### Criteria for GradStat status

To fulfil the requirements for GradStat:

#### ***Graduates have a good knowledge of***

- **the frequentist and Bayesian methods for conducting data analyses**
  - Programmes are free to concentrate on either approach, so long as students are given a secure grounding in both.
- **their logical foundations, including relevant probability theory**
  - Programmes must give students a secure knowledge of the mathematical foundations of statistics. However, this should always be within some context of application: proficiency in mathematics without a good understanding of its implications is insufficient. Similarly, proficiency in the practical application of statistics must be underpinned by a robust knowledge of the mathematical foundations.
- **the principles of systematic data collection, management and curation**
  - Data now has many different sources. 'Found' administrative or transactional data is increasingly important, as well as data that is the product of a specific research design. This means that as well as knowledge of the principles and practice of experimental research design, and sampling, graduates require some experience in the preparation of data for analysis, including matching data from different sources and also require an understanding of the implications of data quality for subsequent analysis, and the need where appropriate to produce reproducible knowledge.

***They can use this knowledge, together with software and programming skills, to***

- **build, assess and refine models appropriate for describing and understanding a wide variety of processes or problems**
  - Students should be able to marry their knowledge of the logical foundations of statistics with proficiency in using software to put statistical theory into practice. They should be able to evaluate the strengths and weaknesses of alternative approaches and appreciate that there may not always be one single 'best' solution. This includes being able to identify how statistics may address problems posed in non-statistical terms.
- **draw appropriate inferences from them**
  - Students should be able to use their statistical expertise both to draw conclusions and describe the degree of uncertainty associated with these conclusions, and the assumptions made in reaching them.
- **effectively communicate both substantive results and the nature of the uncertainty inherent in them, to expert or lay audiences.**
  - Statistical expertise that cannot be effectively communicated to others is of limited value. Students should be able to match the degree of technical complexity in the presentation of results to the level of understanding of their target audience. They should also be aware of, and able to communicate, the limitations of the conclusions they reach.

***They are aware of the implications of their work for the rights of individuals, are trustworthy, maintain the highest ethical standards and work for the public good.***

Ethics encompasses more than data security and protection. As the volume and complexity of data collected on individuals grows, students must be aware of the importance and nature of informed consent. They should understand the importance of the integrity of their work not only for the reputation of the statistics profession but for public trust in the value of evidence, and its use for their benefit.

In addition to the above, qualifications must be:

1.

- a. a UK Bachelors degree of classification 2:2 honours or better (or equivalent under UK NARIC) that was, at time of award, on the list of the Society's accredited degrees. Holders of a non-accredited UK Bachelors degree programme must have completed a combination of modules that successfully meet the Society's standard for a Graduate Statistician as set out above [to be evidenced by a copy of the transcript and degree certificate];  
OR
- b. a UK Masters level degree of classification pass or better (or equivalent under UK NARIC) that was, at time of award, on the list of the Society's accredited degrees. Holders of a non-accredited UK Masters level degree programme must have completed a combination of modules that successfully meet the Society's standard for a Graduate Statistician

as set out above. [to be evidenced by a copy of the transcript and degree certificate];

OR

- c. more than one degree at UK Bachelors, Masters and/or Doctoral level (or equivalent under UK NARIC) of classification as given in 2 a. and/or 2 b. The degrees must in combination successfully meet the Society's standard for a Graduate Statistician as out above [to be evidenced by copies of transcripts, degree certificates, module / unit descriptions including learning outcomes and candidate's dissertation / research project (or equivalent)];

3.

The Society's Graduate Diploma [this award can be verified from the Society's records]. Exceptionally, where an applicant has partially completed the Graduate Diploma but does not hold the award, they may submit evidence of further study that successfully meet the Society's standard for a Graduate Statistician as set out above. [to be evidenced by a copy of module/unit descriptions and award letters for any further study].

For UK undergraduate Honours Degrees (including enhanced undergraduate degrees of the MMath type), the content must meet the Society's standard for a Graduate Statistician as set out above. Joint degrees in Statistics and/or with other subjects or those with a high content of statistics-based modules, where the high-level statistics content is substantial, might also qualify.

For UK taught Masters degrees (usually MSc), the content must successfully must meet the Society's standard for a Graduate Statistician as set out above.

For overseas degrees, a broad equivalence with UK degrees as set out above is required. The Society is normally guided by UK NARIC (the National Recognition Information Centre for the United Kingdom) in assessing the level of overseas degrees. In some cases, the level of MSc is a necessary requirement.

For research degrees, whether at Masters level (often called MPhil) or at Doctors level (PhD), it will be necessary for an applicant to demonstrate a breadth of study as well as the depth that is inherent in research work which successfully must meet the Society's standard for a Graduate Statistician as set out above. This might for example be achieved by taking some taught courses alongside the research work, or it might be implicit in an undergraduate degree obtained previously.

## **The GradStat Competency Route:**

The criteria for GradStat competency route are the same as the criteria for the competency route to Chartered Statistician (CStat) status.

Applicants whose qualifications meet at least one of three criteria detailed in the academic standards listed within the standard route should apply for GradStat status via the standard route. If you are not sure whether your qualifications fulfil the criteria, we would advise you to first review the Society's standards listed above. If there are gaps in coverage of the required material, then you may still be eligible for GradStat status via the competence based route if you can demonstrate that the necessary knowledge or skills have been acquired in a different way (i.e. through training or further study). The criteria for professional statistical experience are equivalent for both the standard and competence based routes.

When completing the form, applicants will be asked if they wish to apply for GradStat status via the competence based route. Upon selecting "yes" for this question, the online system will automatically generate a further task where applicants can provide the additional information needed for this route.

Applications are considered by the Professional Affairs Committee and the confidential nature of the assessment process is stressed. Nevertheless, it is recognised that some applicants may need further assurance or guidance in this regard. This might for example relate to the use of an organisation's internal documents as part of an applicant's training portfolio, or if there are issues of security clearance. Applicants who anticipate problems with confidentiality should contact the RSS office for advice.

### **Criteria for professional development**

Applicants for GradStat status have to demonstrate professional development consisting of appropriate professional statistical training and experience. It is acceptable for the training to be partly or wholly experiential, i.e. on-the-job.

Candidates accepted via this route will have a minimum of 2 years of professional experience in a field or fields where development and/or application of relevant statistical methods can be drawn on to demonstrate the competencies. In practice it is likely that an applicant's period of experience will be greater than 2 years, in order for them to have accumulated the necessary statistical knowledge and experience. Applicants must show that sufficient training and experience, in line with the Society's [continuing professional development policy](#), have been acquired to satisfy the Professional Affairs Committee. If you have experience of up to 5 years then you are encouraged to review the guidelines and apply for Chartered Statistician status.

In the case of PhD study, the norm is to allow this to count as one year of training/experience, on the basis that it is usually very deep but narrow. Any part-time work carried out alongside further full-time study can be considered, providing full details are provided in the application. Please note that any application received based on a PHD will need to be supported with evidence of all past graduate education.

Full details of the professional experience and professional training requirements for Graduate Statisticians can be found below.

### **Professional experience for Graduate Statistician**

Any relevant practical professional statistical experience will be considered. The following list is indicative of types of experience but it is not exhaustive.

- Working within or managing a statistics section
- Working or Leading projects with a substantial amount of statistical analysis or modelling
- Undertaking statistical analysis of data and reporting on the results
- Having partially or full responsibility for the interpretation and presentation of statistical information
- Helping or managing the designing of statistical databases and reporting systems
- Assisting with the teaching statistical theory and methods, and their applications, in a practically oriented way; at undergraduate and/or postgraduate level.
- Unsupervised statistical consultancy

### **Professional training for Chartered Statistician**

Applicants must provide details of the continuing professional development (CPD) activities in which they have been engaged. A CPD summary covering the preceding year, demonstrating compliance with the [Society's CPD policy](#) must be submitted as part of the application ([a CPD summary template](#) is available from the RSS website).

Applicants should also keep appropriate documents and other supporting material, and are strongly advised to maintain a portfolio for this purpose. The contents of such a portfolio are at the applicant's discretion, but should be seen as a selection of key material. The Society does not believe that it will commonly be necessary or desirable for applicants to maintain extensive portfolios. Compact but informative portfolios are encouraged. A portfolio might contain a selection of the following items, or others, depending on the career of the applicant. The items in this list are offered as guidelines. The list is not intended to be prescriptive, nor should it be interpreted as an order of importance.

- Publications, refereed.
- Publications or presentations at conferences.
- Internal organisation reports.
- Internal presentations.
- Training material, internal or external.
- Other material in which participation of the applicant in a development activity is acknowledged.
- Extramural statistical work (this might include appropriate service on committees).

The portfolio should not be submitted as part of the application, but should be available on request; as the Professional Affairs Committee reserves the right to see it.

## **Additional criteria for competence based route to CStat**

For the competence based route the applicant must provide the following information:

- A completed application form as used for the standard route (this includes details of the statistical content of academic qualifications, job roles and brief descriptions, a CPD summary for the preceding year, code of conduct declaration).
- Additional information as follows:
  - A summary of other formal education/training in statistics (assessed or not) typically undertaken during the period of professional work.
  - A competency report, completed as part of the application form.

The additional information is intended to show how the applicant has developed the depth and breadth of statistical knowledge during their period of professional practice; and to demonstrate the achievement of competencies expected of a Graduate Statistician.

In their competency report, applicants will be required to provide information for each of the competencies C1 to C4 described below. In brief, C1 relates to being up-to-date in statistics, C2 to dealing with the complex or unexpected, C3 dealing with developments in the area of application, and C4 with ongoing reflection and improvement.

### **C1: Use experiential knowledge and statistical understanding to optimise the application of existing and emerging statistical methods.**

*You should provide sufficient detail here to show your experiential knowledge and how you have applied it. Further to this, include any examples of where your broad statistical understanding is applied to your area of practice. Examples could include but are not limited to:*

- *Writing and presenting internal papers and reports*
- *Conducting appropriate research to facilitate design and development of processes in your field of application*
- *Design and delivery of statistical teaching and training*
- *Developing standards and processes for statistical work*

### **C2: Exercise sound judgement in the absence of complete information and in complex or unpredictable situations.**

*This competence is asking you to demonstrate appropriate handling of novel or unexpected situations. This will include being aware of the limit of your own knowledge and professional competence, to demonstrate an ability to manage your own strengths and weaknesses and to recognise the level of risk attached to your actions. Examples could include but are not limited to:*

- *Application of an existing technique to a new situation*
- *Managing the interpretation of unexpected findings or events and assessing their impact*
- *Decision making in a complex situation*

### **C3: Demonstrate critical statistical evaluation of information and concepts to propose solutions to problems**

*You should think of this competence in terms of developing or selecting the best methodology. This could include study design, the subsequent data analysis, conclusions you draw and their communication; and how you overcame any barriers or issues. Examples of this critical evaluation could be in the context of:*

- *Developing experimental designs or approaches to statistical inference*
- *Survey design, implementation, analysis and interpretation of findings*
- *Ensuring the interpretation of findings is understood by the target audience (subject matter experts or lay people)*

#### **C4: Take responsibility for continuous performance improvement at both a personal level and in a wider context**

*Your examples should indicate what actions you take to reflect on your statistical practice with a view to improving either your own performance or that of others. Examples could include but are not limited to:*

- *Identification of lessons learned from activities undertaken by yourself or by others for whom you are responsible; such as what went well, went badly or was lacking*
- *Evaluation of the effectiveness of statistical methods and tools used*
- *Development of recommendations for future enhancements or modifications to procedures or working practices in order to achieve improvements* **Assessment process for GradStat applications via the competence based route**

#### Assessment process for GradStat applications

All applications are considered by members of the Professional Affairs Committee (PAC). The Committee may defer the case, pending receipt of additional information and the RSS office will contact the applicant to request this. Applicants who do not fulfil the criteria but appear to have suitable professional training and experience may be advised to apply for CStat status via the competence based route.

The RSS office is happy to liaise with applicants individually to help them determine which route is most suitable based on their individual circumstances.

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