Paper for 3. APTS year 10 (2016–17): Summary report to Advisory Committee

Preliminary: some summary counts for all ten years 2007–2016

Numbers of students who attended at least one APTS week (of which, EPSRC-funded in brackets):

2007-08 2008-09 2009 - 102010-11 2011-12 2012-13 2013-14 2014-15 2015-16 88 (37) 88 (38) 100 (45) 90 (37) 128 (46) 129 (40) 147 (40) 149 (42) 130 (47)

2016-17 155 (NA)

Number of APTS lecturers to date: 24 (This will increase to 28 in 2017–18)

Number of APTS-week host institutions to date: 11 (remaining at 11 this year)

Member Institutions

In 2016–17 there were 25 MIs, all located in the UK and Ireland.

APTS weeks, academic year 2016–17

Week 1, December 2016, Cambridge:

- Statistical Computing (Finn Lindgren)
- Statistical Inference (Jonty Rougier)
- Evening sessions: RSS Reception, Pub quiz, Academy Dinner

Week 2, March 2017, Oxford:

- Applied Stochastic Processes (Stephen Connor and Amanda Turner)
- Statistical Modelling (Antony Overstall)
- Evening sessions: RSS Reception, Social Event at Pitt Rivers Museum, Academy Dinner

Week 3, July 2017, Durham

- Computer Intensive Statistics (Adam Johansen)
- *High-dimensional Statistics* (Rajen Shah)
- Evening sessions: RSS Reception, Academy Dinner

Week 4, August 2017, Glasgow:

- Survival Analysis (Ingrid Van Keilegom)
- Nonparametric Smoothing (Adrian Bowman and Ludger Evers)
- Evening sessions: RSS Reception, Quiz, Ceilidh

Registrations

A total of 158 unique students were registered to attend one or more APTS week in 2016/17. Numbers of registrations for each of the four weeks were 109, 117, 95, and 65, respectively. The corresponding attendance figures were 107, 114, 88, and 59, respectively. At the end of the registration period, we were able to accommodate all students.

Of those 158 students:

- 48 were registered to attend all 4 weeks and 41 students actually did so.
- 144 were first year students in statistics or probability.
- APTS Member Institutions supplied 116 of the 158 applications.



Figure 1: UK 2016/17 Registrations (from institutions supplying UK postal codes)

Student feedback

The following summarizes student responses to an anonymous questionnaire completed at the end of each training week.

A. Preparation for APTS

1. Roughly, how many days did you spend on the preliminary material?





2. Did the preliminary material help you to understand the lectures this week?

	Yes	No	Didn't use
Statistical Computing	37	15	9
Statistical Inference	44	10	7
Applied Stochastic Processes	37	4	12
Statistical Modelling	39	0	14
Computer Intensive Statistics	26	4	11
High-dimensional Statistics	27	4	10
Survival Analysis	10	0	5
Nonparametric Smoothing	9	1	5

B. The APTS week: material covered

1. How would you rate the level of the module lectures?

	Too easy	About right	Too hard
Statistical Computing	7	35	19
Statistical Inference	5	53	3
Applied Stochastic Processes	0	44	5
Statistical Modelling	2	48	0
Computer Intensive Statistics	3	33	4
High-dimensional Statistics	2	30	8
Survival Analysis	3	12	0
Nonparametric Smoothing	0	14	1

2. Did the Oxford R lectures help you with the computer sessions during the week?

	Yes	No	Didn't use
Week 1	19	3	39
Week 2	8	1	42
Week 3	8	0	33
Week 4	5	1	9

3. Did you find the computer sessions/classes helpful?

	Yes	No	Didn't attend
Statistical Computing	34	25	1
Statistical Modelling	44	4	5
Computer Intensive Statistics	33	1	7
Nonparametric Smoothing	13	1	1
Survival Analysis	10	0	5

4. Did you bring a laptop to the computer sessions?

	Yes	No	
Week 1	58	2	

Student costs 2016–17

The following table summarizes the invoices received by APTS sending institutions for the four APTS weeks.

APTS week	Registration	Accommodation
	fees	and food
Cambridge	$\pounds 15,\!660$	$\pounds 28,335$
Oxford	$\pounds 16,820$	$\pounds 31,510$
Durham	$\pounds 13,775$	$\pounds 26,\!672.50$
Glasgow	£TBC	£TBC
TOTAL	$\pounds 46,255$	$\pounds 86,517.50$

Note: Registration fee discounts for students attending all four weeks are all deducted from the final week.

Number of respondents: 52

1. What best describes your current status?

other (please specify): 6 still studying for PhD: 26 working in academia as statistical scientist: 9 working in academia in another role: 4 working in industry as statistical scientist: 5 working in industry in another role: 2

Of those answering other:

awaiting VIVA Just finished the phd statistician / algebraist / general mathematician Still studying part time while working as civil servant Still studying, and working full time in industry. studying for part-time PhD and working working as a Research Manager working in Miliatry Sevice in another role working in the Military Service in another role

2. Which of the APTS weeks did you attend in 2013/14? (specify as many as is appropriate)*

Statistical Computing & Statistical Inference: 44 Statistical Modelling & Statistical Asymptotics: 39 Applied Stochastic Processes & Computer Intensive Statistics: 38 Spatial and Longitudinal Data Analysis & Nonparametric Smoothing: 31

3. Which of the APTS modules ended up connected closely to your eventual PhD research? (specify as many as is appropriate)

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Applied Stochastic Processes: 12
Computer Intensive Statistics: 23
Nonparametric Smoothing: 8
Spatial and Longitudinal Data Analysis: 6
Statistical Asymptotics: 13
Statistical Computing: 31
Statistical Inference: 21
Statistical Modelling: 21
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4. Has the training given by APTS proved helpful to you in your PhD experience and research?

Yes 46 (88%) No 6 (12%)

5. Has the training given by APTS proved helpful to you in your present employment? (answer only if you are not still working for your PhD)

Yes 19 (63%) No 11 (37%)

6. If your answer to either of the previous two questions was yes, which of the following reasons underlie your recommendation? (specify as many as is appropriate)

APTS weeks enable broader contacts with more senior academics: 12 APTS weeks enable networking with peers: 26 Other (please specify): 3 The modules provide a broad general training in the area: 40

Further details supplied by those answering other:

computation skills using R Great fun to get to know so many people, see other universities, learn some unrelated stuff as general education in statistics, things I can come back to now that I need them. Revision plus extended knowledge of broad areas. Improved my ability to read academic papers. Very well written notes.

7. Which of the APTS modules ended up connected closely to your current employment? (specify as many as is appropriate, answer only if you are not still working for your PhD)

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Applied Stochastic Processes: 3
Computer Intensive Statistics: 10
Nonparametric Smoothing: 2
Spatial and Longitudinal Data Analysis: 6
Statistical Asymptotics: 4
Statistical Computing: 15
Statistical Inference: 14
Statistical Modelling: 15
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8. Would you recommend APTS to someone just starting a PhD in applied probability or statistics?*

Yes 51 (98%) No 1 (2%)

Additional Notes

1. Current status of those who would not recommend $APTS^{\dagger}$:

still studying for PhD: 1

2. Current status of those who *did not* find APTS useful for their PhD:

other (please specify): 1 still studying for PhD: 4 working in academia as statistical scientist: 1

Additional Comments

- 1. Although my phd and current work are not closely related to the topics, the courses have broaden my knowledge which were very helpful when I applied for academic jobs that involve a variety of statistical topics. The knowledge that I gained from APTS also provides insight into formulating and solving my research problems. It helps me to pick up the literature more quickly than those topics that I have not come across at all.
- 2. The APTS training was a great opportunity to boost my networking and statistical background. I definitely encourage PhD students to participate.
- 3. The APTS weeks were a great opportunity to boost my networking and statistical background. I definitely encourage PhD students to participate.

- 4. I think APTS was great. At the time I didn't think it would be related to my PhD (and it turns out 98% of it wasn't!) but once you go on teaching stats that is outside your own research area it's really good to have that background of a wider education, to have seen what the challenges in modern statistics are and even if you don't remember any details to have developed a bit of a feel for it. The notes for the first class by Jon Rougier I still recommend to people I meet who know nothing about statistics at all. The classes that were taught at Warwick 2013/14 were a bit boring I seem to remember and better notes would have been helpful. I also recall some of us noticed that a course on design of experiment would have been good. And I really should have done more programming. Sometimes I think that's been the four weeks in which I learned most, much better than most of the conferences or summer schools I went to. Great experience! Please keep going!
- 5. The format of the notes for Statistical Inference and Statistical Computing was extremely helpful and something I returned to often. The social activities and 'free afternoon' were invaluable in making friends who I still have today.
- 6. I would definitely recommend any PhD student to be exposed to this program.
- 7. I really enjoyed the courses in general but felt that the statistical asymptotics talk could be delivered more insight fully rather than just like an analysis course with statement-proof etc. Also, I would have found the final courses on Nonparametric smoothing and Spatial and longitudinal data analysis more useful if they had been taught a bit slower (I understand it is there to broaden your knowledge so details are not needed as much) but the course felt like it was best suited for those who had already seen/used these methods at undergraduate and moved too fast away from the basics and intuition.
- 8. The courses were extremely helpful, in particular the statistical computing course.
- 9. I really enjoyed the course!
- 10. It would be good if Advanced Multivariate Data Analysis could be included in the APTS.
- 11. I only attended one course, because of the funding limitations. The courses were great and very good value-for-time-spent and value-for-money, but attending all of them is well beyond the training grants that most of the students get, and first year phd students are really not likely to pay for the courses on their own (which I now regret with all my heart), so perhaps partnering with EPSRC & ESRC would help them spend their money on proper stats training rather than on hundreds of rubbish networking dinners. Anyway, it was amazing and I would recommend it to anyone, or go myself again.
- 12. I only just managed to get on week 2 one year and then followed that by week 1 the next and week 3 the final. Doing week 1 before week2 would have been much preferable. I appreciate that the courses are oversubscribed so the priorities are probably fair but it would be good if there wasn't this constraint so that part-timers like me that can only escape from employment for 1 week a year aren't penalised.
- 13. †In my opinion the public attending the APTS is too broad and consequently the courses are too broad as well. Students coming having already done a masters in mathematical statistics or related topics are effectively more or less wasting their times on the course. This is not a criticism on the courses themselves which are actually well given and the content is interesting. My criticism is that in my opinion it should be more focused either in terms of the public attending or in content otherwise it ends up being pretty useless with the exception of the opportunity to network a bit and see other universities (but I doubt that's the primary goal of the APTS). For example the APTS could introduce the problems and challenges encountered in different areas of contemporary research (as opposed to foundations for such things). This would be interesting including in areas different than ones' phd topic.

Warwick, September 5, 2017

Registration for APTS

Student registration for APTS academic year 2017-18 will open on Friday 22nd September 2017, and **closes on Friday 27th October 2017**. Registration applications made after that date will be kept in a priority-ordered reserve list, in case of any cancellations.

Students can only be registered for APTS weeks by their "sending institution" (i.e., their home department): a list of these institutions appears below.

- If your department wishes to register as a sending institution, then please <u>click here;</u>
- If your department wishes to commit to being a full Member Institution of APTS, then please <u>click here</u>.
 (All Member Institutions are automatically "sending institutions".)

If your department is included in the list below, the APTS contact (who must be a member of academic staff employed by that institution) will be provided with a password enabling him/her to complete the <u>student</u> <u>registration form</u> for 2017-18 APTS weeks. (The student registration form also gives full information on cost.)

The principles and practicalities of student registration and payments include:

- date of application within the registration period is unimportant --- it is not used in determining the allocation of APTS places to students (see the APTS <u>Constitution</u> for the list of priorities)
- sending institutions are invoiced by APTS for the registration fee, and for accommodation/meal costs, of their students who are allocated APTS places
- in the case of a student taking all four APTS weeks in the same academic year a 20% rebate of registration fees (20% of 4 x £160) is made
- all financial transactions with individual APTS students, including those relating to travel expenses, are handled by the sending institution

Please see the <u>FAQ</u> and the <u>Billing and Cancellation policy</u> for more specific information and the <u>list of</u> <u>prerequisites</u> if you are in any doubt as to whether APTS would be suitable for a particular student.

List of sending institutions	APTS contact
Aston University: Mathematics Group	David Saad
Biomathematics & Statistics Scotland	Glenn Marion
Birkbeck University of London: Department of Economics Mathematics and	Decelha Dadica
Statistics	RUSAIDA RAUICE
Brunel University: Department of Mathematics	Silvia Liverani
Cardiff University: School of Mathematics	Anatoly Zhigljavsky
Durham University: Dept of Mathematical Sciences	Jochen Einbeck
Government Communications HQ	Jeremy Bradley
European Molecular Biology Laboratory: European Bioinformatics Institute	Nick Goldman
Francis Crick Institute	Sally Leevers
Heriot-Watt University: Dept of Actuarial Maths and Statistics	George Streftaris
Imperial College London: Business School	Walter Distaso
King's College London:Department of Biostatistics at the Institute of Psychiatry	Sabine Landau
Lancaster University: Dept of Management Science	John Boylan
Lancaster University: Dept of Maths and Statistics	Kanchan Mukherjee
Lancaster University: School of Health and Medicine	Benjamin Taylor

London School of Hygiene and Tropical Medicine **Ruth Keogh** Loughborough University: Department of Mathematics and Statistics Eugenie Hunsicker Loughborough University: School of Business and Economics Nikolaos Argyris Newcastle University: Dept of Mathematics and Statistics Colin Gillespie Northumbria University: Department of Mathematics and Information Sciences Pete Philipson Nottingham Trent University: Department of Mathematics and Statistics Golnaz Shahtahmassebi NUI Galway: Dept of Mathematics John Newell NUI Maynooth: Dept of Mathematics Caroline Brophy **Open University: Dept of Mathematics and Statistics** Paul Garthwaite Simon Wilson **Trinity College Dublin: Statistics Group** Umeå University: Department of Statistics Dr Magnus Ekström University College Cork: Statistics Department Michael Cronin University College Dublin: Statistics Group Brendan Murphy University College London: Dept of Infection and Population Health Andrew Copas University College London: Dept of Statistical Science Paul Northrop University College London: Institute of Child Health Mario Cortina-Borja University of Bath: Dept of Mathematical Sciences Julian Faraway University of Birmingham: School of Mathematics Biman Chakraborty University of Bristol: Dept of Mathematics-Statistics Group Jonty Rougier University of Bristol: Dept of Social Medicine **Chris Metcalfe** University of Cambridge: Cardiovascular Epidemiology Unit **Stephen Burgess** University of Cambridge: CRI Simon Tavare University of Cambridge: MRC Biostatistics Unit Lorenz Wernisch University of Cambridge: MRC Human Nutrition Research Ivonne Solis-Trapala University of Cambridge: Statistical Laboratory Sergio Bacallado Freedom Gumedze University of Cape Town: Department of Statistical Sciences University of East Anglia: School of Computer Science Elena Kulinskaya University of Edinburgh: Centre for Population Health Sciences Chris Weir University of Edinburgh: Roslin Institute Mark Bronsvoort University of Edinburgh: School of Mathematics **Finn Lindgren** University of Essex: Department of Mathematical Sciences **Berthold Lausen** University of Exeter: College of Eng Maths and Phys Sci Chris Ferro University of Glasgow: Statistics Duncan Lee University of Iceland: Dept of Mathematics **Gunnar Stefansson** University of Kent: IMSAS Jim Griffin University of Leeds: Dept of Statistics Stuart Barber University of Leeds: Institute of Clinical Trials Research Sarah Brown University of Limerick: Dept of Mathematics and Statistics Peg Hanrahan University of Liverpool: Department of Biostatistics Gabriela Czanner University of Liverpool: Department of Molecular and Clinical Cancer Medicine Trevor Cox University of Liverpool: Dept of Mathematical Sciences Kai Liu University of Manchester: School of Mathematics Peter Foster University of Nottingham: Nottingham Geospatial Institute Jeremy Morley University of Nottingham: School of Mathematical Sciences Chris Brignell University of Oxford: Clinical Research Unit Vietnam Marcel Wolbers University of Oxford: Dept of Statistics Geoff Nicholls University of Oxford: Wellcome Trust Centre for Human Genetics Julian Knight

APTS: Student registration

University of Plymouth: School of Computing and Mathematics University of Reading: Department of Mathematics and Statistics University of Salford: Centre for OR and Applied Statistics University of Sheffield: Dept of Probability and Statistics University of Sheffield: School of Health and Related Research University of Southampton: Department of Ocean and Earth Science University of Southampton: School of Mathematics University of Southampton: School of Social Sciences University of St Andrews: School of Maths and Statistics University of Strathclyde: Department of Mathematics and Statistics University of Surrey: Dept of Mathematics University of Warwick: Dept of Statistics University of Warwick: MAS CDT/MOAC DTC University of Warwick: MASDOC DTC University of Warwick: Medical School University of Warwick: Systems Biology DTC University of York: Centre for Reviews and Dissemination University of York: Department of Mathematics

Julian Stander Fazil Baksh Phil Scarf **Richard Wilkinson Stephen Walters Claudie Beaulieu** Antony Overstall Peter Smith Len Thomas Michael Grinfeld Janet Godolphin **Barbel Finkenstadt** Mark Barrow Andreas Dedner Nigel Stallard Vicky Buchanan-Wollaston Mark Simmonds Stephen Connor



<u>Contact APTS</u>

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Billing and cancellation

This page gives details of the way in which the accounts of sending institutions will be handled, and of the APTS cancellation policy.

Billing

APTS will maintain an account for each sending institution. Charges made against this account will be:

- registration fee for all students
- cost of the specified accommodation and food requirements

For students who participate in all four APTS weeks in the same academic year, 20% of the total registation fees will be rebated. This is achieved by reducing the registation fee on the final invoice from £160 to £32 (in 2017-2018).

Invoices will be issued to sending institutions **at the end of each APTS week**, for the amounts relating to participation in that APTS week. Registration rebates for students attending all four weeks are made on the invoice for APTS week 4.

Cancellation policy

- 1. Registration fees are payable for all students accepted for an APTS week, and are not normally refunded in the event of cancellation.
- 2. In the event of cancellation of a student's participation in an APTS week, the charges made for accommodation and food will be reduced by
 - 100% if the cancellation is received before noon of the Monday six weeks prior to the Monday of APTS week
 - 50% if the cancellation is received after that but before noon of the Monday four weeks prior to the Monday of APTS week.

(For an APTS week starting on Tuesday or Wednesday, "the Monday of APTS week" means the preceding Monday.) After four weeks prior to an APTS week, charges relating to that APTS week are not normally refunded.

Notice of any cancellation should be sent (by the APTS Academic Contact for the student's home department, NOT by the student concerned) by email to <u>admin@apts.ac.uk</u>.

Intranet Contact APTS

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