Resources

# PGR at Liverpool

* Postgraduate handbook: <https://www.liverpool.ac.uk/student-administration/research-students/>. Contains everything you need to know.
* Doctoral College website: <https://www.liverpool.ac.uk/intranet/doctoral-college/>. Information about:
  + Induction and Postgraduate Researcher Week
  + Training and Development: Training needs analysis and training opportunities, and recording of this in PGR Portfolio of Activity
* Liverpool Life: <http://liverpool-life.liv.ac.uk>. Contains:
  + Administration of your personal details / registration status
* UoL policies on PGR supervision and monitoring: <https://www.liverpool.ac.uk/aqsd/academic-codes-of-practice/pgr-code-of-practice/>. See Appendices 2 and 3.
* Mentoring for early years researchers, through IPHS or the University. For IPHS contact Kate Bennett ([K.M.Bennett@liverpool.ac.uk](mailto:K.M.Bennett@liverpool.ac.uk)) or register through the IPHS Athena SWAN pages (University HR intranet page). Female early years researcher network hold quarterly meetings on different issues affecting female researchers. Register on University HR intranet page to join the mailing list.
* Career Development Planning: <http://pcwww.liv.ac.uk/~pgro/CareerResources/>

# General academic

## Writing a research paper / review

* Research manuscript template: <https://github.com/cab79/postgrad_training/blob/master/Manuscript%20template.docx>
* Structuring a paper: <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005619>
* Writing a review: <http://crosstalk.cell.com/blog/how-to-write-a-review-article-that-people-will-read>
* Rules for figures: <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003833>
* Advice on neuroscience and ERP figures:
  + <https://garstats.wordpress.com/2016/07/28/neuroscience-group-results/>
  + <https://garstats.wordpress.com/2016/04/02/simple-steps-for-more-informative-erp-figures/>

## Proposals/grants

* Choosing a problem: <http://www.weizmann.ac.il/mcb/UriAlon/sites/mcb.UriAlon/files/uploads/nurturing/howtochoosegoodproblem.pdf>
* Writing a research proposal/grant:
  + <https://www.ifm.eng.cam.ac.uk/research/grant-writers-handbook/links/>
  + <https://www.chronicle.com/article/How-to-Fail-in-Grant-Writing/125620>
  + <http://www.parkerderrington.com/key-sentence-skeletons/>
  + <http://www.sciencemag.org/careers/2002/07/writing-research-plan>
  + <http://libguides.usc.edu/writingguide/researchproposal>
  + <https://www.nature.com/news/the-best-kept-secrets-to-winning-grants-1.22038>
* Funding for postdocs: <https://asntech.github.io/postdoc-funding-schemes/>

## General writing tools

* Mendeley referencing software: <https://www.mendeley.com/>
* De-jargonizer: <http://scienceandpublic.com/>
* Stat error check <http://statcheck.io/>

## Presentations

* Effective presentations: <http://blogs.nature.com/naturejobs/2017/02/03/successful-vs-effective-research-presentations>
* Ten simple rules: <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1005373>
* How to design scientific slides (video): <https://www.northwestern.edu/climb/resources/oral-communication-skills/designing-PowerPoint-slides.html>

## Open science

* General presentations: <https://www.nature.com/openresearch/scidata16-presentations/>
* Preregistration:
  + Reasons: <https://www.psychologicalscience.org/observer/seven-selfish-reasons-for-preregistration#.WC4LgcunzqD>
  + Advice: <https://scienceofpsych.wordpress.com/2016/02/05/so-you-want-to-pre-register-a-study/>
  + Resources:
    - <https://cos.io/prereg/>
    - <https://cos.io/rr/>
* Reasons for preprint posting: <https://nikokriegeskorte.org/2016/03/13/the-selfish-scientists-guide-to-preprint-posting/>

## Collaborations

* <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1004311>

## Career advice

* General advice for new graduate students:
  + <https://medium.com/@dorsaamir/modest-advice-for-new-graduate-students-b0be6b8dbc22>
  + <http://www.sciencemag.org/careers/2018/08/three-reminders-help-you-thrive-not-merely-survive-grad-school>
* General advice to psychological scientists:
  + <https://www.psychologicalscience.org/observer/a-letter-to-young-scientists>
  + <https://www.psychologytoday.com/us/blog/the-motivated-brain/201709/advice-grad-students-and-senior-faculty>
* Academia or industry?
  + <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1000388>
  + <http://www.pgbovine.net/academia-industry-junior-employee.htm>
* Academic funding pathways: <https://mrc.ukri.org/skills-careers/interactive-career-framework/#/home>
* Work-life balance: <https://amp.theguardian.com/science/head-quarters/2018/feb/13/how-to-be-an-academic-without-working-60-hours-a-week>
* How not to drown in email: <http://foulkesy.blogspot.co.uk/2018/03/how-to-not-drown-in-your-email.html>
* Jobs options after a PhD:
  + Jobs on toast: <http://jobsontoast.com/>
  + Applying for post-doc positions: <http://www.brains-explained.com/how-to-apply-for-postdocs/>

## Media

* NatureJobs newsletter: <https://www.nature.com/naturejobs/science/static/naturejobs-newsletter>
* Social media advice:
  + <http://blogs.nature.com/naturejobs/2012/09/28/social-media-tips-for-scientists/>
  + <https://arthropodecology.com/2016/04/13/using-twitter-in-science-advice-for-graduate-students/>
  + <https://cogtales.wordpress.com/2018/05/11/how-to-use-twitter-for-networking-in-academia/>
  + <http://www.mayaproject.org/blog/2015/10/4/top-twitter-tips-for-academics>
  + <https://www.postplanner.com/scientific-twitter-tips-to-get-more-retweets-followers/>
  + <https://sproutsocial.com/insights/best-times-to-post-on-social-media>
* Everything Hertz podcast: <https://soundcloud.com/everything-hertz>
* The Black Goat podcast: <http://www.theblackgoatpodcast.com/>

# General Statistics / Programming

## Educational

* Improving statistical inferences: <https://www.coursera.org/learn/statistical-inferences>
* Learning Matlab:
  + For data analysis / stats: <https://www.cmrr.umn.edu/~kendrick/statsmatlab/>
  + <http://sincxpress.com/> (paid-for content)
  + <https://www.coursera.org/learn/matlab>
  + <https://matlabacademy.mathworks.com/?s_tid=dl_mlac>
  + <http://www.antoniahamilton.com/matlab_for_psychologists.pdf>
  + <http://jonathanpeelle.net/learning-matlab/>
* Bayesian data analysis for newcomers: <https://link.springer.com/article/10.3758%2Fs13423-017-1272-1>
* Machine learning with R: <https://www.r-bloggers.com/in-depth-introduction-to-machine-learning-in-15-hours-of-expert-videos/>
* Making “null” effects informative: <https://psyarxiv.com/48zca/>
* A Tutorial on the Git Version Control System: <http://journals.sagepub.com/eprint/CxmDEDrWCmqw6sZTGNEh/full>

## Analysis tools

* JASP: <https://jasp-stats.org>
* Sample size / power:
  + <https://www.danielsoper.com/statcalc/>
  + <https://jakewestfall.shinyapps.io/pangea/>
  + <http://www.sample-size.net/sample-size-study-paired-t-test/>
* Equivalence testing: <http://daniellakens.blogspot.co.uk/2016/12/tost-equivalence-testing-r-package.html> and <http://daniellakens.blogspot.co.uk/2017/03/equivalence-testing-in-jamovi.html>
* ICC: <http://journals.sagepub.com/doi/abs/10.1191/0962280204sm365ra>
* PYMC3: Bayesian inference in Python: <http://docs.pymc.io/index.html>

## Visualisation tools

* Gramm toolbox (charting): <https://github.com/piermorel/gramm>
* Raincloud plots: <https://git.fmrib.ox.ac.uk/marshall/public/tree/master/raincloud_plots>

## Media

* The 20% Statistician: <http://daniellakens.blogspot.co.uk/>
* Dorothy Bishop blog: <http://deevybee.blogspot.co.uk/>
* Data Colada: <http://datacolada.org/>

# Neuroimaging

## Educational

* Pain neuroimaging primer: <http://www.jpain.org/article/S1526-5900(18)30122-6/fulltext>
* Best practices in neuroimaging: <https://vimeo.com/album/4510630>
* Principles of fMRI: <https://www.youtube.com/channel/UC_BIby85hZmcItMrkAlc8eA/featured>
* OHBM meeting videos (very comprehensive!): <https://www.pathlms.com/ohbm>
* SPM course videos: <http://www.fil.ion.ucl.ac.uk/spm/course/video/>
* EEG analysis concepts and learning from Matlab code:
  + <http://www.mikexcohen.com/lectures.html>
  + <http://bishoptechbits.blogspot.co.uk/>
* MRC CBU wiki: <http://imaging.mrc-cbu.cam.ac.uk/imaging/CbuImaging>
* Neuroimaging data processing wiki: <https://en.m.wikibooks.org/wiki/Neuroimaging_Data_Processing>
* Diffusion imaging tutorials: <http://www.diffusion-imaging.com/>
* Reproducible practices: <http://journals.plos.org/ploscompbiol/article?id=10.1371/journal.pcbi.1003285>
* Manual ICA of fMRI data: <https://www.sciencedirect.com/science/article/pii/S1053811916307583>

## Power and design

* <http://www.neuropowertools.org/>
* Design efficiency in fMRI: <http://imaging.mrc-cbu.cam.ac.uk/imaging/DesignEfficiency>

## Standard fMRI sequences/pipelines

* UK biobank: <http://www.fmrib.ox.ac.uk/ukbiobank/index.html>
* fmriprep: <http://fmriprep.readthedocs.io/en/latest/index.html>

## Toolboxes for EEG or fMRI statistics

* EEGLAB: <https://sccn.ucsd.edu/eeglab/index.php>
* Fieldtrip: <http://www.fieldtriptoolbox.org>
* SPM: <http://www.fil.ion.ucl.ac.uk/spm/>
  + Automating SPM12 for fMRI: <https://github.com/wagner-lab/spm12w>
* FSL: <https://fsl.fmrib.ox.ac.uk/fsl/fslwiki>
* MIALAB toolboxes: <http://mialab.mrn.org/software/index.html>, including group and fusion ICA for EEG and fMRI.
* Canlab (multiple toolboxes): <https://github.com/canlab>
  + E.g. mediation toolbox: <https://github.com/canlab/MediationToolbox>

## MVPA educational

* Understanding pain and emotions using MVPA: <http://wanirepo.github.io/pdfs/Woo_040915_SAStalk_pdf.pdf>
* EEG decoding: <https://arxiv.org/ftp/arxiv/papers/1606/1606.02840.pdf>
* Interpreting weight maps:
  + <https://www.humanbrainmapping.org/files/2017/ED%20Courses/Course%20Materials/PR4NI_Schrouff_Jessica(1).pdf>
  + <https://www.sciencedirect.com/science/article/pii/S1053811913010914?via%3Dihub#bb0235>

## Toolboxes for MVPA (in Matlab)

* PRoNTo: <http://www.mlnl.cs.ucl.ac.uk/pronto/>
  + Searchlight: <https://github.com/CyclotronResearchCentre/PRoNTo_SearchLight>
* COSMOMVPA: [www.cosmomvpa.org/](http://www.cosmomvpa.org/)

## Connectivity

* M/EEG network inference: <https://github.com/OHBA-analysis/MEG-ROI-nets>
* BRAPH toolbox: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0178798>

## Other analysis tools

* fMRI meta-analysis: <http://neurosynth.org/>
* Cortical atlas parcellations: <http://www.lead-dbs.org/?page_id=1004>

## Visualisation

* 3D visualisation of MRI data: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4648228/>

## Databases

* <https://openneuro.org/>
* <https://openfmri.org/>

## Conferences/workshops

* EEG: <https://cuttingeeg.org/>

# Cognitive computational neuroscience

## Educational

* Introductory paper: <https://www.nature.com/articles/s41593-018-0210-5>
* Introduction to predictive coding: <https://www.quantamagazine.org/to-make-sense-of-the-present-brains-may-predict-the-future-20180710/>
* CCN 2017 videos: <https://ccneuro.org/2017/index.html@p=602.html>
  + E.g. Tutorial on Bayesian cognitive modelling: <https://www.youtube.com/watch?v=H1vp10PVKcw&feature=youtu.be>
  + Tutorial on computation neuroscience: <https://www.youtube.com/watch?v=24ym3pkTVI0>
* Bayesian modelling and inference: <https://www.youtube.com/watch?v=ju1Grt2hdko&t=3718s>
* Hierarchical models: <https://www.sciencedirect.com/science/article/pii/S0022249616300025>
* Computational Psychiatry videos: <https://www.video.ethz.ch/lectures/d-itet/2017/autumn/227-0971-00L.html>
* Variational Bayesian inference: <https://kaybrodersen.github.io/talks/Brodersen_2013_03_22.pdf>
* Free energy framework tutorial: <https://www.sciencedirect.com/science/article/pii/S0022249615000759>

## Toolboxes

* Variational Bayesian analysis: <https://mbb-team.github.io/VBA-toolbox/>, including:
  + Associative learning: <http://mbb-team.github.io/VBA-toolbox/wiki/bayesian-learning/>
  + Bayesian Model Selection: <http://mbb-team.github.io/VBA-toolbox/wiki/BMS-for-group-studies/>
* Hierarchical Gaussian Filter: <https://github.com/translationalneuromodeling/tapas>
* Hierarchical modelling of decision-making tasks: <https://github.com/CCS-Lab/hBayesDM>

## Media

* Podcast: <http://unsupervisedthinkingpodcast.blogspot.co.uk/>