Framework for
Open and
Reproducible
Research Training

FORRT

Understanding the Credibility Revolution and Open and Reproducible Research Syllabus

based on The replication crisis has led to positive structural, procedural, and community changes

Provisional slides for Week 1 and 12 can be found here.

Course Description:

The *Open and Reproducible Research Syllabus* is designed to provide students with an in-depth understanding of the challenges, implications, and transformative changes brought about by the replication crisis in psychological science. The course includes critical topics such as the replication crisis, the credibility revolution, embedding open science into the curriculum, and the role of incentives for researchers, journals, and funders. Students will explore innovative approaches, including prediction markets, statistical assessment tools, and big-team science, to enhance research's transparency, rigour, and reproducibility.

Learning Objectives:

Students embark on a comprehensive exploration of the challenges and transformations catalysed by the replication crisis in psychological science. During the initial weeks, learners delve into the roots and implications of the crisis, scrutinising seminal studies and dissecting methodological challenges

such as undisclosed flexibility in data collection and analysis. The course progresses to the examination of the credibility revolution, where students not only grasp its principles but also assess the practical implications for productivity, creativity, and overall scientific progress. Emphasis is placed on understanding the benefits and challenges associated with preregistration and registered reports, crucial tools in fostering transparent and credible research practices. Throughout, students critically analyse the role of transparency and openness in enhancing the credibility of scientific research. These objectives collectively equip students with a nuanced understanding of the dynamics reshaping psychological science and empower them to navigate the evolving landscape of open and reproducible research.

Assessment:

Assessment methods could include critical analysis of core readings, group discussions, and hands-on exercises applying open science principles. Students can also engage in a final project synthesising the course concepts and proposing strategies for implementing open science in specific research contexts.

Prerequisites:

Basic understanding of research methods and statistical analysis in psychology.

For key terms see https://www.nature.com/articles/s44271-023-00003-2/tables/1.

For the full glossary of open science terms see https://forrt.org/glossary/.

Level:

The course is an 11-week course for late undergraduate (last year of Bachelor) and early graduate level (Masters, early PhD level).

Schedule:

Week 1. The Replication Crisis

Learning Goals:

- Understand the concept of the replication crisis and its implications for psychological science.
- Identify key studies and findings contributing to the replication crisis.
- Analyse the methodological issues leading to the crisis, including undisclosed data collection and analysis flexibility.
- Evaluate alternative perspectives on the replicability of psychological science.

Core readings:

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251), https://doi.org/10.1126/science.aac4716.

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2011). False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant. *Psychological Science*, *22*(11), 1359–1366. https://doi.org/10.1177/0956797611417632.

Additional readings:

Wagenmakers, E.-J., Wetzels, R., Borsboom, D., & van der Maas, H. L. J. (2011). Why psychologists must change the way they analyze their data: The case of psi: Comment on Bem (2011). *Journal of Personality and Social Psychology, 100*(3), 426–432. https://doi.org/10.1037/a0022790.

Youyou, W., Yang, Y., & Uzzi, B. (2023). A discipline-wide investigation of the replicability of Psychology papers over the past two decades. *Proceedings of the National Academy of Sciences*, *120*(6), e2208863120 .https://doi.org/10.1073/pnas.2208863120

Ulrich, R., & Miller, J. (2020). Questionable research practices may have little effect on replicability. *Elife*, *9*, e58237. https://doi.org/10.7554/eLife.58237.

Świątkowski, W., & Dompnier, B. (2017). Replicability crisis in social psychology: Looking at the past to find new pathways for the future. *International Review of Social Psychology*, *30*(1), 111-124. https://doi.org/10.5334/irsp.66.

Week 2. The Credibility Revolution

Learning Goals:

- Comprehend the principles and implications of the credibility revolution in science.
- Explore the benefits and challenges of preregistration and registered reports.
- Assess the role of transparency and openness in enhancing the credibility of scientific research.
- Examine the evolution of research practices and their impact on productivity and progress.

Core readings:

Vazire, S. (2018). Implications of the Credibility Revolution for Productivity, Creativity, and Progress. *Perspectives on Psychological Science, 13*(4), 411-417. https://doi.org/10.1177/1745691617751884.

Munafò, M. R., Nosek, B. A., Bishop, D. V., Button, K. S., Chambers, C. D., Percie du Sert, N., ... & Ioannidis, J. (2017). A manifesto for reproducible science. *Nature human behaviour*, *1*(1), 1-9. https://doi.org/10.1038/s41562-016-0021.

Additional readings:

Vazire, S., Schiavone, S. R., & Bottesini, J. G. (2022). Credibility Beyond Replicability: Improving the Four Validities in Psychological Science. *Current Directions in Psychological Science*, *31*(2), 162–168. https://doi.org/10.1177/09637214211067779.

Chambers, C. D., & Tzavella, L. (2022). The past, present and future of registered reports. *Nature human behaviour*, *6*(1), 29-42. https://doi.org/10.1038/s41562-021-01193-7.

Nosek, B. A., Ebersole, C. R., DeHaven, A. C., & Mellor, D. T. (2018). The preregistration revolution. *Proceedings of the National Academy of Sciences*, *115*(11), 2600-2606. https://doi.org/10.1073/pnas.1708274114.

Week 3. Embedding replications and Open Science into the curriculum

Learning Goals:

- Develop strategies for incorporating open science principles into academic curricula.
- Explore grassroots training methods for promoting reproducible science.
- Understand the role of pedagogical communities in fostering a culture of open scholarship.
- Evaluate the evidence base for current pedagogical methods and their outcomes in teaching open and reproducible scholarship.

Core readings:

Button, K. S., Chambers, C. D., Lawrence, N., & Munafò, M. R. (2020). Grassroots training for reproducible science: a consortium-based approach to the empirical dissertation. *Psychology Learning & Teaching*, *19*(1), 77-90. https://doi.org/10.1177/1475725719857659.

Pownall, M., Azevedo, F., König, L. M., Slack, H. R., Evans, T. R., Flack, Z., … F. (2022, April 8). Teaching Open and Reproducible Scholarship: A Critical Review of the Evidence Base for Current Pedagogical Methods and their Outcomes. https://doi.org/10.31222/osf.io/9e526.

Additional readings:

Azevedo, F., Liu, M., Pennington, C. R., Pownall, M., Evans, T. R., Parsons, S., ... & Framework for Open, Reproducible Research Training (FORRT) forrt@ forrt. org. (2022). Towards a culture of open scholarship: the role of pedagogical communities. *BMC Research Notes*, *15*(1), 75. https://doi.org/10.1186/s13104-022-05944-1.

Quintana, D. S. (2021). Replication studies for undergraduate theses to improve science and education. *Nature Human Behaviour*, *5*(9), 1117-1118. https://doi.org/10.1038/s41562-021-01192-8.

Week 4. Incentives: Targeting Researchers, Journals & Funders

Learning Goals:

- Analyse the incentives influencing researchers' participation in open science practices.
- Examine the role of journals and funders in promoting open science.
- Explore the impact of publication metrics on academic job market success.

Core readings:

Ali-Khan, S. E., Harris, L. W., & Gold, E. R. (2017). Motivating participation in open science by examining researcher incentives. *Elife*, *6*, e29319. https://doi.org/10.7554/eLife.29319.

Robson, S. G., Baum, M. A., Beaudry, J. L., Beitner, J., Brohmer, H., Chin, J. M., ... & Thomas, A. (2021). Promoting open science: a holistic approach to changing behaviour. *Collabra: Psychology*, *7*(1), 30137. https://doi.org/10.1525/collabra.30137

Renbarger, R., Adelson, J. L., Rosenberg, J., Stegenga, S. M., Lowrey, O., Buckley, P. R., & Zhang, Q. (2022, November 15). Champions of Transparency in Education: What Journal Reviewers Can Do to Encourage Open Science Practices. https://doi.org/10.35542/osf.io/xqfwb.

Additional readings:

Van Dijk, D., Manor, O., & Carey, L. B. (2014). Publication metrics and success on the academic job market. *Current Biology*, *24*(11), R516-R517. https://doi.org/10.1016/j.cub.2014.04.039.

Vanclay, J. K. (2012). Impact factor: outdated artefact or stepping-stone to journal certification?. *Scientometrics*, *92*(2), 211-238. https://doi.org/10.1007/s11192-011-0561-0.

Brembs, B., Huneman, P., Schönbrodt, F., Nilsonne, G., Susi, T., Siems, R., ... & Rodriguez-Cuadrado, S. (2023). Replacing academic journals. *Royal Society Open Science*, *10*(7), 230206. https://doi.org/10.1098/rsos.230206.

Week 5. Prediction markets of research credibility

Learning Goals:

- Understand the concept of prediction markets and their application in estimating research replicability.
- Evaluate the effectiveness of lay people in predicting successful replication of social science studies.
- Analyse data from large-scale forecasting projects and prediction market outcomes.
- Explore alternative approaches, such as structured expert elicitation, in predicting research reliability.

Core readings:

Tierney, W., Hardy III, J. H., Ebersole, C. R., Leavitt, K., Viganola, D., Clemente, E. G., ... & Hiring Decisions Forecasting Collaboration. (2020). Creative destruction in science. *Organizational Behavior and Human Decision Processes*, *161*, 291-309. https://doi.org/10.1016/j.obhdp.2020.07.002.

Dreber, A., Pfeiffer, T., Almenberg, J., Isaksson, S., Wilson, B., Chen, Y., ... & Johannesson, M. (2015). Using prediction markets to estimate the reproducibility of scientific research. *Proceedings of the National Academy of Sciences*, *112*(50), 15343-15347. https://doi.org/10.1073/pnas.1516179112.

Hoogeveen, S., Sarafoglou, A., & Wagenmakers, E. J. (2020). Laypeople can predict which social-science studies will be replicated successfully. *Advances in Methods and Practices in Psychological Science*, *3*(3), 267-285. https://doi.org/10.1177/2515245920919667.

Additional readings:

Gordon, M., Viganola, D., Dreber, A., Johannesson, M., & Pfeiffer, T. (2021). Predicting replicability—Analysis of survey and prediction market data from large-scale forecasting projects. *Plos one*, *16*(4), e0248780. https://doi.org/10.1371/journal.pone.0248780.

Fraser, H., Bush, M., Wintle, B. C., Mody, F., Smith, E. T., Hanea, A. M., ... & Fidler, F. (2023). Predicting reliability through structured expert elicitation with

the repliCATS (Collaborative Assessments for Trustworthy Science) process. *Plos one*, *18*(1), e0274429. https://doi.org/10.1371/journal.pone.0274429.

Week 6. Statistical assessment tools & Single study statistical assessments

Learning Goals:

- Examine statistical tools for assessing errors, bias and power in the literature.
- Understand the challenges and solutions in assessing a set of studies.
- Evaluate methods for assessing a single study, including Statcheck and the GRIM test.
- Explore issues related to alpha levels and their impact on significance testing.

Core readings:

Button, K. S., & Munafò, M. R. (2017). Powering reproducible research. *Psychological science under scrutiny: Recent challenges and proposed solutions*, 22-33. https://doi.org/10.1002/9781119095910.ch2.

Rubin, M., & Donkin, C. (2022). Exploratory hypothesis tests can be more compelling than confirmatory hypothesis tests. *Philosophical Psychology*, 1-29. https://doi.org/10.1080/09515089.2022.2113771.

Additional readings on the assessment of a set of studies:

Simonsohn, U., Nelson, L. D., & Simmons, J. P. (2014). P-curve: a key to the file-drawer. *Journal of experimental psychology: General*, *143*(2), 534. http://dx.doi.org/10.1037/a0033242.supp.

Brunner, J., & Schimmack, U. (2020). Estimating population mean power under conditions of heterogeneity and selection for significance. *Meta-Psychology*, *4*. https://doi.org/10.15626/MP.2018.874.

Additional readings on the assessment of a single study:

Nuijten, M. B., & Polanin, J. R. (2020). "statcheck": Automatically detect statistical reporting inconsistencies to increase reproducibility of meta-analyses. *Research synthesis methods*, *11*(5), 574-579. https://doi.org/10.1002/jrsm.1408.

Brown, N. J., & Heathers, J. A. (2017). The GRIM test: A simple technique detects numerous anomalies in the reporting of results in psychology. *Social Psychological and Personality Science*, *8*(4), 363-369. https://doi.org/10.1177/1948550616673876.

Heathers, J. A., Anaya, J., van der Zee, T., & Brown, N. J. (2018). *Recovering data from summary statistics: Sample parameter reconstruction via iterative techniques (SPRITE)* (No. e26968v1). PeerJ Preprints. https://doi.org/10.7287/peerj.preprints.26968v1.

Additional readings on the alpha-level:

Benjamin, D. J., Berger, J. O., Johannesson, M., Nosek, B. A., Wagenmakers, E. J., Berk, R., ... & Johnson, V. E. (2018). Redefine statistical significance. *Nature human behaviour*, *2*(1), 6-10. https://doi.org/10.1038/s41562-017-0189-z.

Trafimow, D., Amrhein, V., Areshenkoff, C. N., Barrera-Causil, C. J., Beh, E. J., Bilgiç, Y. K., ... & Marmolejo-Ramos, F. (2018). Manipulating the alpha level cannot cure significance testing. *Frontiers in psychology*, *9*, 699. https://doi.org/10.3389/fpsyg.2018.00699.

Lakens, D., Adolfi, F. G., Albers, C. J., Anvari, F., Apps, M. A., Argamon, S. E., ... & Zwaan, R. A. (2018). Justify your alpha. *Nature human behaviour*, *2*(3), 168-171. https://doi.org/10.1038/s41562-018-0311-x.

Additional readings on testing null-effects:

Lakens, D., Scheel, A. M., & Isager, P. M. (2018). Equivalence testing for psychological research: A tutorial. *Advances in Methods and Practices in Psychological Science*, *1*(2), 259-269. https://doi.org/10.1177/2515245918770963.

Verhagen, J., & Wagenmakers, E. J. (2014). Bayesian tests to quantify the result of a replication attempt. *Journal of Experimental Psychology: General*, *143*(4), 1457. https://psycnet.apa.org/doi/10.1037/a0036731.

Week 7. Multiverse, Meta-Analysis, Mega-Analyses, and Systematic Reviews

Learning Goals:

- Understand the concept of multiverse analysis and its role in increasing transparency.
- Explore methods and guidelines for conducting systematic reviews and meta-analyses.
- Evaluate the benefits and challenges of multiverse and meta-level analyses.

Core readings:

Steegen, S., Tuerlinckx, F., Gelman, A., & Vanpaemel, W. (2016). Increasing Transparency Through a Multiverse Analysis. *Perspectives on Psychological Science*, *11*(5), 702–712. https://doi.org/10.1177/1745691616658637.

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *International journal of surgery*, *88*, 105906. https://doi.org/10.1016/j.ijsu.2021.105906.

Topor et al. (2023) An integrative framework for planning and conducting Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR). *Meta-Psychology, 7*.https://doi.org/10.15626/MP.2021.2840

Additional readings:

Harder, J. A. (2020). The Multiverse of Methods: Extending the Multiverse Analysis to Address Data-Collection Decisions. *Perspectives on Psychological Science*, *15*(5), 1158–1177. https://doi.org/10.1177/1745691620917678.

Carter, E. C., Schönbrodt, F. D., Gervais, W. M., & Hilgard, J. (2019). Correcting for bias in psychology: A comparison of meta-analytic methods. *Advances in Methods and Practices in Psychological Science*, *2*(2), 115-144. https://doi.org/10.1177/2515245919847196.

Tong, A., Flemming, K., McInnes, E. et al. (2012). Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Med Res Methodol, 12*(181). https://doi.org/10.1186/1471-2288-12-181

Campbell M, McKenzie J E, Sowden A, Katikireddi S V, Brennan S E, Ellis S et al. (2020). Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. *BMJ*, *368*. https://doi.org/10.1136/bmj.l6890.

Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). Cochrane Handbook for Systematic Reviews of Interventions version 6.4 (updated August 2023). Cochrane, 2023. Available from www.training.cochrane.org/handbook

Week 8. Big-Team Science & Adversarial Collaborations

Learning Goals:

- Explore the benefits, barriers, and risks associated with big-team science.
- Understand the concept of adversarial collaborations and their role in scientific inquiry.
- Analyse the impact of crowdsourcing on scientific research.
- Evaluate the role of multidisciplinary team science in promoting collaboration.

Core readings:

Uhlmann, E. L., Ebersole, C. R., Chartier, C. R., Errington, T. M., Kidwell, M. C., Lai, C. K., McCarthy, R. J., Riegelman, A., Silberzahn, R., & Nosek, B. A. (2019). Scientific Utopia III: Crowdsourcing Science. *Perspectives on Psychological Science*, *14*(5), 711–733. https://doi.org/10.1177/1745691619850561.

Forscher, P. S., Wagenmakers, E. J., Coles, N. A., Silan, M. A., Dutra, N., Basnight-Brown, D., & IJzerman, H. (2023). The benefits, barriers, and risks of big-team science. *Perspectives on Psychological Science*, *18*(3), 607-623. https://doi.org/10.1177/17456916221082970.

Additional readings:

Jarke, H., Anand-Vembar, S., Alzahawi, S., Andersen, T. L., Bojanić, L., Carstensen, A., ... & Geiger, S. J. (2022). A roadmap to large-scale multi-country replications in psychology. *Collabra: Psychology*, *8*(1), 57538. https://doi.org/10.1525/collabra.57538.

Disis, M. L., & Slattery, J. T. (2010). The road we must take: multidisciplinary team science. *Science translational medicine*, *2*(22), 22cm9-22cm9. https://doi.org/10.1126/scitranslmed.3000421.

Week 9 Research Measurement/Psychometric Practices

Learning Goals:

- Learning about Questionable Measurement Practices: Understanding which practises to avoid when doing research.
- Adherence to Open Science: Applying open science principles to avoid questionable measurement practices.
- Evaluating Previous Evidence of Open Science Implementation in Psychometric Research: Assessing existing evidence regarding the application of open science principles in psychometric research.
- Exploring Resources for Implementing Open Science in Measurement and Psychometrics: Learning about resources available to implement open science practices in measurement and psychometric research.

Core readings:

Flake, J.K., Fried, E. I. (2020). Measurement Schmeasurement: Questionable Measurement Practices and How to Avoid Them. *Advances in Methods and Practices in Psychological Science,* *3*(4), 456-465. https://doi.org/10.1177/2515245920952393

Flores-Kanter, P., & Mosquera, M. (2023). How do you Behave as a Psychometrician? Research Conduct in the Context of Psychometric Research. *The Spanish Journal of Psychology, 26*, E13. https://doi.org/10.1017/SJP.2023.14; preprint doi: https://doi.org/10.31234/osf.io/pkc7q

Flores-Kanter, P. E., & Alvarado, J. M. (2023, June 22). The State of Open Science Practices in Psychometric Studies of Suicide: A Systematic Review. https://doi.org/10.31219/osf.io/fwsr3

Additional readings:

Elson, M., Hussey, I., Alsalti, T., & Arslan, R. C. (2023). Psychological measures aren't toothbrushes. *Communications Psychology, 1*(1). https://doi.org/10.1038/s44271-023-00026-9

Flake, J. K., Davidson, I. J., Wong, O., & Pek, J. (2022). Construct validity and the validity of replication studies: A systematic review. American Psychologist, 77(4), 576–588. https://doi.org/10.1037/amp0001006; open-access version: https://www.researchgate.net/publication/359335447_Construct_validity_and_the_validity_of_replication_studies_A_systematic_review

Lilienfeld, S. O., & Strother, A. N. (2020). Psychological measurement and the replication crisis: Four sacred cows. *Canadian Psychology / Psychologie Canadienne, 61*(4), 281–288. https://doi.org/10.1037/cap0000236

Schimmack, U. (2021). The Validation Crisis in Psychology. *Meta-Psychology, 5*. https://doi.org/10.15626/mp.2019.1645

Week 10. Qualitative Research

Learning Goals:

- Explore the challenges and opportunities for open science in qualitative research.
- Understand the principles of integrating qualitative methods and open science.
- Evaluate different approaches to transparency and rigour in qualitative research.
- Examine the application of open science principles in qualitative psychology research.

Core readings:

Class, B., de Bruyne, M., Wuillemin, C., Donzé, D., & Claivaz, J.-B. (2021). Towards Open Science for the Qualitative Researcher: From a Positivist to an

Open Interpretation. *International Journal of Qualitative Methods*, *20*. https://doi.org/10.1177/16094069211034641.

Humphreys, L., Lewis Jr, N. A., Sender, K., & Won, A. S. (2021). Integrating qualitative methods and open science: Five principles for more trustworthy research. *Journal of Communication*, *71*(5), 855-874. https://doi.org/10.1093/joc/jqab026.

Additional readings:

Steltenpohl et al. (2023). Rethinking Transparency and Rigor from a Qualitative Open Science Perspective. *Journal of Trial & Error*. https://doi.org/10.36850/mr7.

Branney, P., Brooks, J., Kilby, L., Newman, K. L., Norris, E., Pownall, M., … Whitaker, C. (2022, July 11). Three Steps to Open Science for Qualitative Research in Psychology. https://doi.org/10.1111/spc3.12728.

Campbell et al. (2023). Open-Science Guidance for Qualitative Research: An Empirically Validated Approach for De-Identifying Sensitive Narrative Data. *Advances in Methods and Practices in Psychological Science.6*(4). https://doi.org/10.1177/25152459231205832

Week 11. Generalizability, Formal Theory Building, and DEIA

Learning Goals:

- Understand the challenges and implications of the generalizability crisis.
- Explore the role of formal theory building in addressing the theory crisis in psychology.
- Evaluate the benefits and risks of big-team science in the context of diversity, equity, inclusion, and accessibility (DEIA).
- Understand the role of hypothesis testing in generating crises and the importance of spending less time on testing hypotheses and more time on theory building, exploratory testing and better experimental planning.

Core readings:

Robinaugh, D. J., Haslbeck, J. M., Ryan, O., Fried, E. I., & Waldorp, L. J. (2021). Invisible hands and fine calipers: A call to use formal theory as a toolkit for theory construction. *Perspectives on Psychological Science*, *16*(4), 725-743. https://doi.org/10.1177/1745691620974697.

Yarkoni, T. (2022). The generalizability crisis. *Behavioral and Brain Sciences*, *45*, e1. https://doi.org/10.1017/S0140525X20001685.

Oberauer, K., & Lewandowsky, S. (2019). Addressing the theory crisis in psychology. *Psychonomic bulletin & review*, *26*, 1596-1618. https://doi.org/10.3758/s13423-019-01645-2.

Devezer, B., Navarro, D. J., Vandekerckhove, J., & Ozge Buzbas, E. (2021). The case for formal methodology in scientific reform. *Royal Society open science*, *8*(3), 200805. https://doi.org/10.1098/rsos.200805.

Additional readings:

Forscher, P. S., Wagenmakers, E. J., Coles, N. A., Silan, M. A., Dutra, N., Basnight-Brown, D., & IJzerman, H. (2023). The benefits, barriers, and risks of big-team science. *Perspectives on Psychological Science*, *18*(3), 607-623. https://doi.org/10.1177/17456916221082970.

Scheel, A. M., Tiokhin, L., Isager, P. M., & Lakens, D. (2021). Why Hypothesis Testers Should Spend Less Time Testing Hypotheses. *Perspectives on Psychological Science*, *16*(4), 744–755. https://doi.org/10.1177/1745691620966795.

Coles, N. A., DeBruine, L. M., Azevedo, F., Baumgartner, H. A., & Frank, M. C. (2023). 'Big team' science challenges us to reconsider authorship. *Nature Human Behaviour*, *7*(5), 665-667. https://doi.org/10.1038/s41562-023-01572-2.

Guest, O., & Martin, A. E. (2021). How computational modeling can force theory building in psychological science. *Perspectives on Psychological Science*, *16*(4), 789-802. https://doi.org/10.1177/1745691620970585

Week 12. The replication crisis has led to positive structural, procedural, and community changes.

Learning Goals:

- Summarise the positive structural, procedural, and community changes resulting from the replication crisis.
- Evaluate the ongoing impact of open science practices on the field of psychology.
- Analyse case studies and examples of high replicability in social-behavioural findings.
- Synthesise the key takeaways from the course and their implications for future research practices.

Slides

Provisional slides can be found here.

Core readings:

Korbmacher, M., Azevedo, F., Pennington, C. R., Hartmann, H., Pownall, M., …, Micheli, L., & Evans, T. (2023). The replication crisis has led to positive structural, procedural, and community changes. *Communications Psychology. 1*(3). https://doi.org/10.1038/s44271-023-00003-2.

Additional readings:

Protzko, J., Krosnick, J., Nelson, L. *et al*. (2023). High replicability of newly discovered social-behavioural findings is achievable. Nature Human Behaviour (in press), 1-9. https://doi.org/10.1038/s41562-023-01749-9.

Reading which accompanies the course

Pennington, C. (2023). *A Student's Guide to Open Science: Using the Replication Crisis to Reform Psychology*. McGraw-Hill Education (UK).

https://www.mheducation.co.uk/a-student-s-guide-to-open-science-using-the-replication-crisis-to-reform-psychology-9780335251162-emea-group

https://search.worldcat.org/title/1366220948

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