MATH20009: Perspectives in Mathematics

This unit will be comprised of three periods of activity, in each of which there will be a choice between a task which uses the students' maths background to develop communication or career skills, and one which gives scope for independent exploration of new mathematics.

The unit will also involve aspects of group work, peer review and support, peer assessment, as well as presenting work orally and in written form. As these skills are important in almost any career, whether professional or academic, it is suggested that all 2nd year students seriously consider taking this course.

@book{Adams_1994, address={New York}, title={The knot book: an elementary introduction to the mathematical theory of knots}, publisher={W.H. Freeman}, author={Adams, Colin Conrad}, year={1994} }

@book{Andrews_Askey_Roy_1999, address={Cambridge}, title={Special Functions}, volume={Encyclopedia of mathematics and its applications}, url={http://dx.doi.org/10.1017/CBO9781107325937}, publisher={Cambridge University Press}, author={Andrews, George E. and Askey, Richard and Roy, Ranjan}, year={1999} }

@book{Apostol_1976, address={New York}, title={Introduction to analytic number theory}, volume={Undergraduate texts in mathematics}, publisher={Springer}, author={Apostol, Tom M.}, year={1976} }

@article{Austin_Barry_Berman_2000, title={The Lengthening Shadow: The Story of Related Rates}, volume={73}, DOI={10.2307/2691482}, number={1}, journal={Mathematics Magazine}, author={Austin, Bill and Barry, Don and Berman, David}, year={2000}, month={Feb} }

@book{Bhattacharya_2003, address={Oxford}, title={Microstructure of martensite: why it forms and how it gives rise to the shape-memory effect}, volume={Oxford series on materials modelling}, publisher={Oxford University Press}, author={Bhattacharya, Kaushik}, year={2003} }

@book{Boaler_Dweck_2016, address={San Francisco}, title={Mathematical mindsets: unleashing students' potential through creative math, inspiring messages, and innovative teaching}, publisher={Jossey-Bass}, author={Boaler, Jo and Dweck, Carol S.}, year={2016} }

@article{Brawner_2000, title={Dinner, Dancing, and Tennis, Anyone?}, volume={73},

DOI={10.2307/2691486}, number={1}, journal={Mathematics Magazine}, author={Brawner, James N.}, year={2000}, month={Feb} }

 @article{Doyle, Peter G._2000, title={Random Walks and Electric Networks}, url={https://arxiv.org/abs/math/0001057}, author={Doyle, Peter G.}, year={2000} }

 @article{Durksen_Way_Bobis_Anderson_Skilling_Martin_2017, title={Motivation and engagement in mathematics: a qualitative framework for teacher-student interactions}, volume={29}, DOI={10.1007/s13394-017-0199-1}, number={2}, journal={Mathematics Education Research Journal}, author={Durksen, Tracy L. and Way, Jennifer and Bobis, Janette and Anderson, Judy and Skilling, Karen and Martin, Andrew J.}, year={2017}, month={Jun}, pages={163–181} }

 @book{Falconer_2014, address={Chichester, West Sussex}, edition={Third edition}, title={Fractal geometry: mathematical foundations and applications}, url={https://ebookcentral.proquest.com/lib/bristol/detail.action?docID=1557285}, publisher={John Wiley & Sons Ltd}, author={Falconer, K. J.}, year={2014} }

 @book{Foulds_1984, address={New York}, title={Combinatorial optimization for undergraduates}, volume={Undergraduate texts in mathematics}, publisher={Springer-Verlag}, author={Foulds, L. R.}, year={1984} }

 @book{Gelbaum_Olmstead_1964, address={San Francisco}, title={Counterexamples in analysis}, volume={The Mathesis Series}, publisher={Holden-Day}, author={Gelbaum, Bernard and Olmstead, John M. H.}, year={1964} }

 @book{Graver_Mathematical Association of America_2001, address={Washington, D.C.}, title={Counting on frameworks: mathematics to aid the design of rigid structures}, volume={Dolciani mathematical expositions}, publisher={Mathematical Association of America}, author={Graver, Jack E. and Mathematical Association of America}, year={2001} }

 @book{Grimmett_Stirzaker_2001, address={Oxford}, edition={3rd ed}, title={Probability and random processes}, publisher={Oxford University Press}, author={Grimmett, Geoffrey and Stirzaker, David}, year={2001} }

 @article{Horak_2006, title={Disentangling Topological Puzzles by Using Knot Theory}, volume={79}, DOI={10.2307/27642974}, number={5}, journal={Mathematics Magazine}, author={Horak, Matthew}, year={2006}, month={Dec} }

 @book{Houston_2009, address={Cambridge}, title={How to think like a mathematician: a companion to undergraduate mathematics}, publisher={Cambridge University Press}, author={Houston, Kevin}, year={2009} }

 @article{Joshua D. Laison and Michelle Schick_2007, title={Seeing Dots: Visibility of Lattice Points}, volume={80}, url={http://www.jstor.org/stable/27643042?seq=1#page_scan_tab_contents}, number={4}, journal={Mathematics Magazine}, publisher={Mathematical Association of AmericaMathematical Association of America}, author={Joshua D. Laison and Michelle Schick}, year={2007}, pages={274–282} }

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rner_1988, address={Cambridge}, title={Fourier Analysis}, url={http://dx.doi.org/10.1017/CBO9781107049949}, publisher={Cambridge University Press}, author={Ko

rner, T. W.}, year={1988} }

@book{Korte_Vygen, address={Berlin}, edition={3rd ed}, title={Combinatorial optimization: theory and algorithms}, volume={21}, DOI={10.1007%2F3-540-29297-7}, publisher={Springer}, author={Korte, B. H. and Vygen, Jens} }

@article{MICHAEL A. JONES_2009, title={The Geometry behind Paradoxes of Voting Power}, volume={82}, url={http://www.jstor.org/stable/27765883}, number={2}, journal={Mathematics Magazine}, publisher={Mathematical Association of AmericaMathematical Association of America}, author={MICHAEL A. JONES}, year={2009}, pages={103–116} }

@book{Niven_2014, address={Cambridge}, title={Irrational Numbers}, url={http://dx.doi.org/10.5948/9781614440116}, publisher={Cambridge University Press}, author={Niven, Ivan}, year={2014} }

@book{Rousseau_Saint-Aubin_2008, address={New York}, title={Mathematics and technology}, volume={Springer undergraduate texts in mathematics and technology}, DOI={10.1007/978-0-387-69216-6}, publisher={Springer}, author={Rousseau, Christiane and Saint-Aubin, Yvan}, year={2008} }

@article{Sam C. Saunders, N. Chris Meyer and Dane W. Wu_1999, title={Compounding Evidence from Multiple DNA-Tests}, volume={72}, url={http://www.jstor.org/stable/2691312?seq=1#page_scan_tab_contents}, number={1}, journal={Mathematics Magazine}, publisher={Mathematical Association of AmericaMathematical Association of America}, author={Sam C. Saunders, N. Chris Meyer and Dane W. Wu}, year={1999}, pages={39–43} }

@article{SIEHLER_2010, title={How Long Until a Random Sequence Decreases?}, volume={83}, url={http://www.jstor.org/stable/10.4169/002557010x529798}, DOI={10.4169/002557010x529798}, number={5}, journal={Mathematics Magazine}, author={SIEHLER, JACOB}, year={2010} }

@book{Silverman_Tate_2015, address={Cham}, edition={Second edition, enlarged and updated}, title={Rational points on elliptic curves}, volume={Undergraduate texts in mathematics}, publisher={Springer}, author={Silverman, Joseph H. and Tate, John T.}, year={2015} }

@article{Thomas J. Pfaff and Max M. Tran_2009, title={Series That Probably Converge to One}, volume={82}, url={http://www.jstor.org/stable/27643157?seq=1#page_scan_tab_contents}, number={1}, journal={Mathematics Magazine}, publisher={Mathematical Association of AmericaMathematical Association of America}, author={Thomas J. Pfaff and Max M. Tran}, year={2009}, pages={42–49} }

@book{Tufte_1997, address={Cheshire, Conn}, title={Visual explanations: images and quantities, evidence and narrative}, publisher={Graphics Press}, author={Tufte, Edward R.}, year={1997} }

@book{Ware_2013, address={Waltham, MA}, edition={3rd ed}, title={Information visualization: perception for design}, volume={The Morgan Kaufmann series in interactive technologies}, url={https://ebookcentral.proquest.com/lib/bristol/detail.action?docID=892223}, publisher={Morgan Kaufmann}, author={Ware, Colin}, year={2013} }

@article{Weiner_2000, title={The Abundancy Ratio, a Measure of Perfection}, volume={73}, DOI={10.2307/2690980}, number={4}, journal={Mathematics Magazine}, author={Weiner, Paul A.}, year={2000}, month={Oct} }

@article{On Lexell's Theorem_2017, volume={124}, DOI={10.4169/amer.math.monthly.124.4.337}, number={4}, journal={The American Mathematical Monthly}, year={2017} }

@misc{How to Write Mathematics, url={https://uob-my.sharepoint.com/personal/mancs_bristol_ac_uk/Documents/htwm.pdf} }

@misc{Netflix Prize problem notes, url={https://uob-my.sharepoint.com/personal/mancs_bristol_ac_uk/Documents/Netflix%20 prize%20problem.pdf?slrid=1f6a1b9e-b026-4000-7aa2-edb69d56df80} }

@misc{Ancestral Inference in Population Genetics, url={https://link.springer.com/content/pdf/10.1007/978-3-540-39874-5_1.pdf} }