Department/Academic Unit: Mathematics and Statistics Degree Program: PhD

Degree Level Expectations, Learning Outcomes, Indicators of Achievement and the Program Requirements that Support the Learning Outcomes

Expectations (general descriptors from OCAV)	Learning Outcomes (program specific)** This degree is awarded to students who demonstrate…	Indicators of Achievement As evidenced by…	Relevant Courses and academic requirements (requirements that contribute to the achievement of learning outcomes and degree expectations)
Depth and breadth of knowledge	Learning outcome: Advanced graduate level expertise in at least two subject areas (chosen from Analysis, Algebra, Probability and Statistics, and Geometry and Topology) and breadth of knowledge in oral presentations forming part of the degree requirements.	Advanced knowledge: MATH 844, 891, 892, 893, 894, 895, 896 Basic knowledge: MATH 801, 802, 805, 806, 812, 813, 818, 825, 827, 830, 832, 834, 836, 837, 838, 843, 844, 872, 874, 877, 884, 891, 892, 893, 894, 895, 896, 901, 902, 903, 905, 912, 913, 915, 922, 923, 925, 932, 933, 935, 936, 937, 939, 942, 943, 945, 972, 973, 975 STAT 853, 854, 855, 856, 857, 862, 864, 865, 866, 867, 870, 871, 873, 886, 952, 953, 955, 962, 963, 965 Breadth of knowledge: Comprehensive exam, Thesis defence	
Research and scholarship	Learning outcomes: (1) An ability to create new mathematical and/or statistical research. This includes being able to independently come up with ideas for research, and carry through an independent investigation of these. (2) An ability mathematical and/or statistical knowledge beyond the mere repetition of knowledge acquired in courses or preliminary research investigations. In addition, for applied mathematics and statistics, facility	Indicator: Research activity, monitored by annual progress reports, culminating in the thesis defence.	MATH/STAT 999, Thesis defence

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