



**Mathematics 515 Foundations**

(see Course Descriptions under the year applicable: <http://www.ucalgary.ca/pubs/calendar/> )

*Syllabus*

<u>Topics</u>	<u>Number of Hours</u>
Introduction: Review of informal set theory, Russell's Paradox, the need for axioms, formal language, history.	2
Ordered pairs, relations and functions, equivalence relations, ordering relations, partial order and well orderings, trees.	3
Axiomatic foundation of Set Theory. Power and limitations of the axiomatic method.	5
Axiom of choice and equivalents, paradoxes.	5
Cardinal and ordinal numbers, arithmetic, induction and recursion on $\omega$ and wellfounded sets.	9
Infinitary combinatorics, stationary sets and clubs, filters and ideals. Further axioms and applications.	9
<b>TOTAL AMOUNT</b>	<b>33</b>

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