

# Directed Reading Program Research Proposals

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## Category Theory:

**Description:** The first part of the project plans to review the basics of category theory and look at some important examples. We then move on to define the natural transformation between the Hom-functor and the set valued functor, which leads to the concept of the Yoneda Lemma. We plan to formulate and prove the Yoneda lemma. If time permits we might also look at some consequences and applications of the Yoneda Lemma.

## Prerequisites:

1. Mathematics 0105A/B
2. Mathematics 0109A/B

## References:

1. Awodey, Steve. Category Theory. Clarendon Press, 2006.
2. Mac Lane, Saunders. Categories for the Working Mathematician. 2nd ed., Springer, 1998.