CSIE 5111: Introduction to Mathematical Logic  
(Semester 2, 2017/18)

Website
https://www.csie.ntu.edu.tw/~tonytan/teaching/2017b-logic/2017b-logic.html

Instructor
Name : Tony Tan  
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Office hour : By appointment via email  
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Venue and time
Thursday, 10:30–13:00, room 546.

Prerequisite
Discrete mathematics and mathematical maturity. Familiarity with theory of computation will be helpful toward the end.

Syllabus (tentative)
1. Propositional calculus. 
2. Proof system in propositional calculus and its completeness. 
3. First-order logic (FO): Syntax and semantics. 
4. Logical consequences and theories. 
5. Proof system in FO and Gödel’s completeness theorem. 
6. Löwenheim-Skolem theorem and categorical sets. 
7. Gödel’s incompleteness theorem. 
8. Decision problems for FO.

Textbook
We will not follow one particular textbook. All the materials that we will cover can be found in the following textbooks:
- A Mathematical Introduction to Logic by H. Enderton. 
- A Concise Introduction to Mathematical Logic by W. Rautenberg. 

You can find informal treatment of logic in the following books:
- Gödel’s Theorem: An Incomplete Guide to its Use and Abuse by T. Franzén. 
- A Tour through Mathematical Logic by W. Rautenberg.

Grading
- Five assignments weigh 20% each.