GEK1517 Mathematical Thinking

--- Course Description ---

List of Topics to be Covered:

**The Notion of Proof in Mathematics.**

**Three Models:**

- The Definition-Theorem-Proof (DTP) model of Mathematics (with examples from Euclidean Geometry and others).
- The Definition-Speculation-Theorem-Proof (DSTP) model of Mathematics (with examples).
- The Idea-Criticism model of Mathematics.

**Major Facilities for Mathematical Thinking:** Human Language; Vision, Spatial Sense and Motion Sense; Logic and Deduction; Intuition, Association and Metaphor; Stimulus Response; Process and Time.

**Critical Reasoning:** Conjectures and Refutations.

**Post Critical Facets:** Fact $\neq$ Knowledge; Personal Use of Imagination, Heritage/Tradition, Connoisseurship, Conviviality and Serendipity.

**Lectures:** WED 4-6PM in LT23; THUR 6-8PM in LT25.

**Tutorials:** To be finalized by the second week. Tutorials starts on the third week (28 Aug onward).

**Assessment:**

* Two (about 20 min each) short quizzes (2 x 10%). Dates to be announced at least two weeks in advance.
* **Final Exam** (80%): can bring in one (1) hand-written (on both sides) A-4 size help sheet. *Date of the Exam: Wed, 29 Nov 2006, AM Session (please double check).*

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