APPENDIX II
Teaching Evaluation Checklist

Date: 10-23-17 **Course:** MTH 207

Name of the Reviewer: B. Krakowski 5:05-6:20

Name of the Instructor: Tessa Chen

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1. Instructor was on time ✓
2. Instructor presented the material in an organized way that is easy to follow ✓
3. Instructor maintained a good pace ✓
4. Instructor presented the material at an appropriate level ✓
5. Instructor challenged the students ✓
6. Instructor maintained high academic standards ✓
7. Instructor encouraged students to ask questions and responded appropriately ✓
8. Instructor respected the students ✓
9. Instructor spoke clearly For the most part! Occassionally spoke quickly & was a little difficult to understand at those times.
10. Instructor made effective use of the chalkboard and/or presentation technology ✓
11. When instructor used technology it was done in an effective way Absolutely
12. Instructor gave relevant applications of the material when appropriate ✓
13. Assignments were appropriate ✓

Additional comments and suggestions:

Students & Dr. Chen work through notes "packets" together. This allows for more discussion/examples, since all of the definitions are already provided.

35 (of 38) students in attendance - good sign for a course that tends to have "reluctant learners"

See attached notes for additional comments and minor suggestions.

Reviewer B. J. Krak.

Instructor Ying-Tsu Chen

MTH 207
Tessa Chen
1-23-17

(36 students present)

SC224
5:05-6:20

Random Phenomena – Ch. 12 (Randomness to Probability)

(Summer internship opportunities – info from conference last week. Drumming up potential interest)

Vocabulary - trial, outcome, event, sample space

* Not all outcomes are equally likely ... earthquake happens *
$S = \{Yes, No\}$

Probability
Theoretical/Model-Based ... "ideally"
Empirical ... experiment/observe
Personal/Subjective ... can we "trust" this?

2 Big Ideas we need to discuss.

#1: Independence (intuitive/common sense idea here first)

class discussion/ideas of a few examples

Not a hill to die on in 207, though...
- independent vs. not independent
- (emphasize that we don't know if events are dependent, though... just not independent!)

#2: Law of Large Numbers (LLN)
(vs. the "Law of Averages"... which is a fallacy!)

Experiment: T, T, T, T, H, T, ...

Rel. Freq: 1, 1, 1, 1, 4/5, 5/6, ...

Computer Simulation 50 trials

500 trials

5000 trials

LLN: The "beginning" doesn't matter... just what's in the long run!

Probability = Relative Frequency

$P(A)_{empirical} = \frac{\#\text{ time A occurred}}{\#\text{ of trials (total)}}$, based on repeatedly observing the event's outcome.

The Nonexistence of the "Law of Averages"... (For independent events!)

Many T's ... so the next toss should probably have more likelihood of being H.

(No! Still ½ ... the coin doesn't know what happened!!!)

Baseball batter is "due"

Stock that had gone down for several days was ready for a "bounce back"

(Conceptual Questions are posted on Isidore... assigned or voluntary?!)

Formal Probability (Rules)

$0 \le P(A) \le 1$

$P(S) = 1$, $P(A^c) = 1 - P(A)$

$P(A \text{ or } B) = P(A) + P(B)$ (A, B disjoint events)

$P(A \text{ and } B) = P(A) \cdot P(B)$ (A, B independent events)

Nice descriptions, examples, explanations of the rules.

A^c or $\overline{A}$ means "not A" = everything except A

disjoint = mutally exclusive ≠ independent

* Notes packets should be a nice time saver, leaving room for more discussion & examples...

(Maybe emphasize that "and" doesn't mean <u>add</u>, as it does w/ simple arithmetic!)

$\frac{1}{2 \times 53} = \frac{1}{2} \times \frac{1}{53}$ (I think this may cause some confusion in the long-run, as an example of $P(A) \times P(B)$ since we don't 1st talk about $P(A)$, $P(B)$... it comes at the end. I liked it, but 207 students will likely not follow your reasoning here.)

M&M's example (#39 from book) - good. simple. shows rules in a basic, intuitive setting

3 M&M's ... P(All Brown) = (.3)×(.3)×(.3)

A discussion of why "independent" might have been good. Student misconception: (.3)(.29)(.28), since 1 less M&M... it's horrible misconception, but it's there!

Yes! You did circle back to it...

Good!!

53 sticks ... 52 sticks... different probabilities

vs.

Candies ... so many candies. 1 gone doesn't really impact the % (at any noticeable level)

"at least one green" is the complement of ... ?

(Student responded correctly)

Suggestion: $1-(.9)(.9)(.9)=.271$

Compare to the most common wrong answer:

$(.1)(.9)(.9)=.081 \neq .271$

↑

Imposes an order for "where" the green one occurs, and it's exactly 1...

(Misses a whole bunch of possibilities!!!)

Example - class work independently for last 10 minutes of class w/ Tessa checking/answering questions

"at least one" concept ... circle it to remember later!!!

(1 - "none" always works!!!)