Mitigating Cheating by Incentivizing Honesty and Positive Reinforcement

Jeremy Chiu

Department of Mathematics and Statistics

FYMSiC, May 2022
Introduction

Hi. I'm Jeremy Chiu

Interests: mathematics, education, volleyball, Magic the Gathering, honeybees, coffee, doggos
Introduction

Hi. I’m Jeremy

Langara College and Simon Fraser University

interests: mathematics, education, volleyball, Magic the Gathering, honeybees, coffee, doggos
Positive Reinforcement

Jeremy Chiu

Introduction

Positive Reinforcement

Incentivizing Honesty

Conclusion
Positive Reinforcement

Introduction
Positive Reinforcement
Incentivizing Honesty
Conclusion
(bonus Benji pics)
Positive Reinforcement – Examples

- ✓ instead of ×
- quizzes /11 instead of /10 for correct name
- compliment sandwich

MATH _______ Section _______ Quiz _______
Student#: 31459265   LAST NAME, first name: Jeremy Chiu

1. $(a+b)^2 - a^2 = a^2 + b^2 - a^2$
   
   $= b^2$ √
Face Time Matters

- receptive to feedback after [low] midterm exam
- appointment vs drop-in office hours: youcanbook.me
Hypothesis: (most) students want to be honest; (some) students cheat when there’s a fear of failure
Hypothesis: (most) students want to be honest; (some) students cheat when there’s a fear of failure

- suggest study / exam-writing tips
- explicitly describe example-driven learning vs concept-driven learning (concepts = definitions, theorems, formulas, procedures)
- provide learning objectives and summarize key steps
- keep student goals in mind
- “I’m not accusing any of you of cheating, but please write down the name of your neighbour”
Levelling the Playing Field

- aid honest students > policing cheaters
- more resources for everyone:
  - sample exams and how to use
  - review packages with (video) solutions
  - old marking schemes

\[
\begin{align*}
(e) \quad \frac{ds}{dt} &= 2 \ln(2) \cdot t \cdot 2^t \\
(f) \quad y' &= \frac{\cos x + 1}{2\sqrt{\sin x + x}} \\
(g) \quad \frac{dy}{dx} &= \frac{e^{xy}}{3y^2 - e^{xy}} \\
2 \quad h^{(51)}(t) &= 2 \cdot (50)!t^{-51} \\
(b) \quad \frac{dy}{dx}\Big|_{x=0} &= 1 \\
(c) \quad x \cos x \left(\frac{\cos x}{x} - \ln(x) \sin x\right) \\
(d) \quad \frac{dy}{dx} &= \frac{e^{xy}}{3y^2 - e^{xy}} \\
3 \quad \sqrt[1.03]{1.03} \approx 1.01
\end{align*}
\]
It’s Okay to Fail

- self-reflection and self-grading
- share your own “failures”

<table>
<thead>
<tr>
<th>Course</th>
<th>Grade</th>
<th>Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>HUM 130</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>MACM 101</td>
<td>3.00</td>
<td>3.00</td>
</tr>
<tr>
<td>MATH 242</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>MATH 380W</td>
<td>3.00</td>
<td>3.00</td>
</tr>
</tbody>
</table>
Be Personable

“I think when an instructor shares a bit about themselves (back story, interests, random side stories) it makes them feel a little more approachable. If they are approachable, then I would be more willing to go and ask for help if I needed it, rather than just try and figure things out for myself.”
Contact

- Name: Jeremy Chiu
- Email: jeremychiu@langara.ca
- Instagram: terrier.benji