

# MASTERY LEARNING

An alternative grading approach -  
By Giulia Toti

# Motivation

Context: Intro to Programming course, delivered online (Spring 2021) at the University of Houston.

My goals:

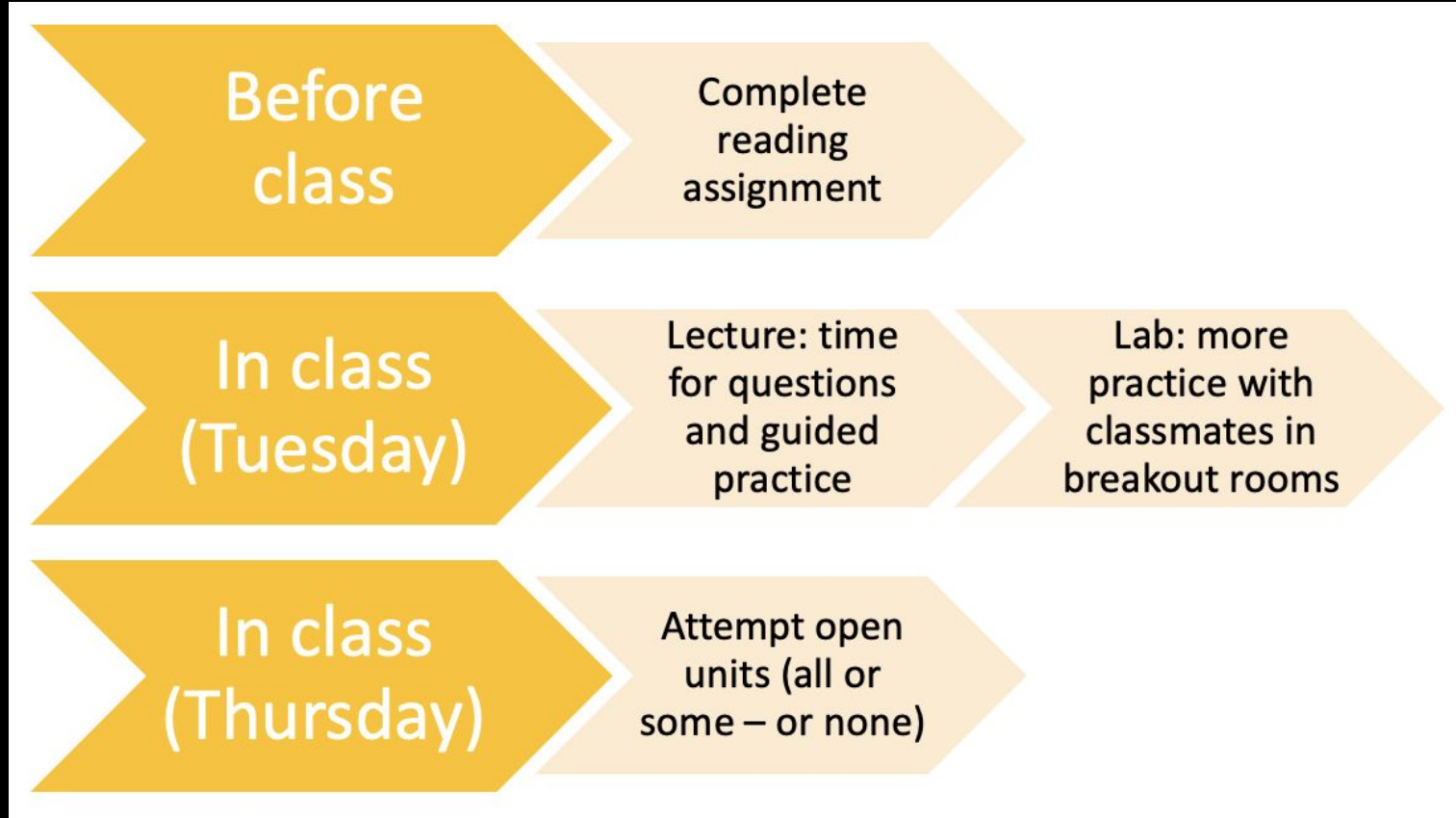
- Create incentives for students to review unclear material
- Eliminate graded programming assignments
- Increase flexibility in an equitable manner

New course structure developed in collaboration with the other instructor of this course, Dr. Guoning Chen.

# Course content

Unit #	Content
Unit 1	Variables and branches
Unit 2	Loops
Unit 3	Arrays
Unit 4	Functions
Unit 5	I/O stream
Unit 6	Structures
Unit 7	Classes (up to constructors, accessors and mutators)
Unit 8	Pointers and dynamic variables
Unit 9	Classes with dynamic variables and Operator overloading
Unit 10	Inheritance
Unit 11	Polymorphism
Unit 12	Exceptions
Unit 13	Templates <b>(Removed for scheduling issues)</b>
Unit 14	Project

# Weekly plan



# Schedule

Week	Tuesday (lecture + lab)	Thursday
1/18-1/22	Introduction to C++ Variables and standard I/O	Branches
1/25-1/29	Loops	<b>Units open: Unit 1, Unit 2</b>
2/1-2/5	Arrays	<b>Units open: Unit 1, Unit 2, Unit 3</b>
2/8-2/12	Functions and parameters	<b>Units open: Unit 2, Unit 3, Unit 4</b>
2/15-2/19	Streams, file I/O	<b>Units open: Unit 3, Unit 4, Unit 5</b>
2/22-2/26	Structures and classes	<b>Units open: Unit 4, Unit 5, Unit 6</b>
3/1-3/5	Classes, constructors, function overloading	<b>Units open: Unit 5, Unit 6, Unit 7</b>
3/8-3/12	Pointers and dynamic variables	<b>Units open: Unit 6, Unit 7, Unit 8</b>
3/15-3/19	<b>Spring Break</b>	<b>Spring Break</b>
3/22-3/26	Classes with dynamic variables Operator overloading	<b>Units open: Unit 7, Unit 8, Unit 9</b>
3/29-4/2	Inheritance	<b>Units open: Unit 8, Unit 9, Unit 10</b>
4/5-4/9	Polymorphism	<b>Units open: Unit 9, Unit 10, Unit 11</b>
4/12-4/16	Exceptions	<b>Units open: Unit 10, Unit 11, Unit 12</b>
4/19-4/23	Templates	<b>Units open: Unit 11, Unit 12, Unit 13</b>
4/26-4/30	<b>Project presentations</b>	<b>Units open: Unit 12, Unit 13</b>

# Grading

Each unit grading is  
Pass/Fail – must  
achieve a score of 75%

Units completed	Grade
14	A
13	A-
12	B+
11	B
10	C+
9	C
8	D
7 or less	F

## Bonuses:

- 80% or more on reading assignments (10/13): 1/3 letter increment (e.g. from B to B+)
- 80% or more attendance (20/25, including in-class exercises submission): 2/3 letter increment (e.g. from B to A-)

# How to succeed in this class

You have control - use it wisely!

Week	Thursday
1/18-1/22	Branches
1/25-1/29	Units open: Unit 1, Unit 2
2/1-2/5	Units open: Unit 1, Unit 2, Unit 3
2/8-2/12	Units open: Unit 2, Unit 3, Unit 4
2/15-2/19	Units open: Unit 3, Unit 4, Unit 5
...	...



I will take 1 unit  
per week

I will take 3  
units every 3  
weeks



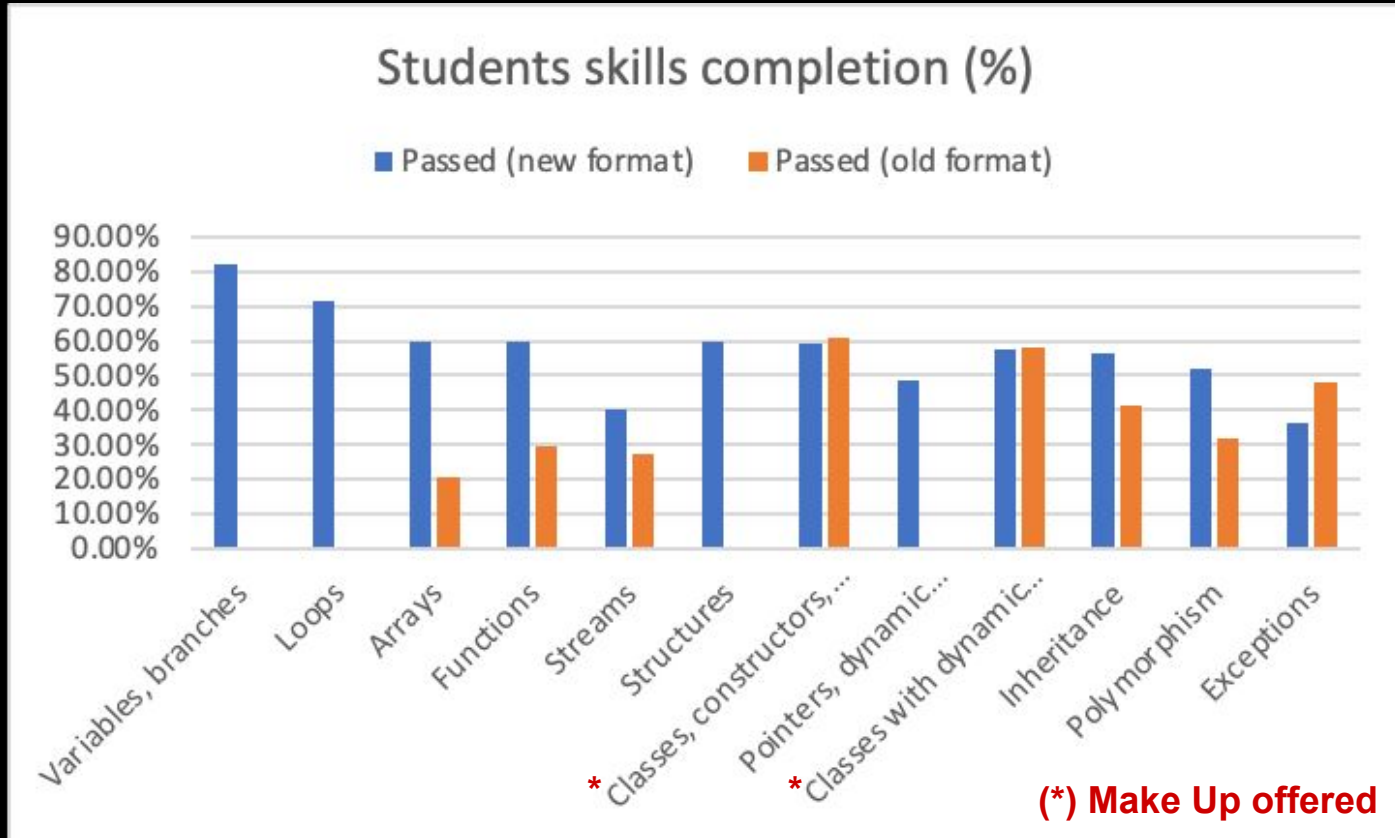
What to do if you miss a lecture/lab/reading  
assignment/unit test?

**NOTHING!**

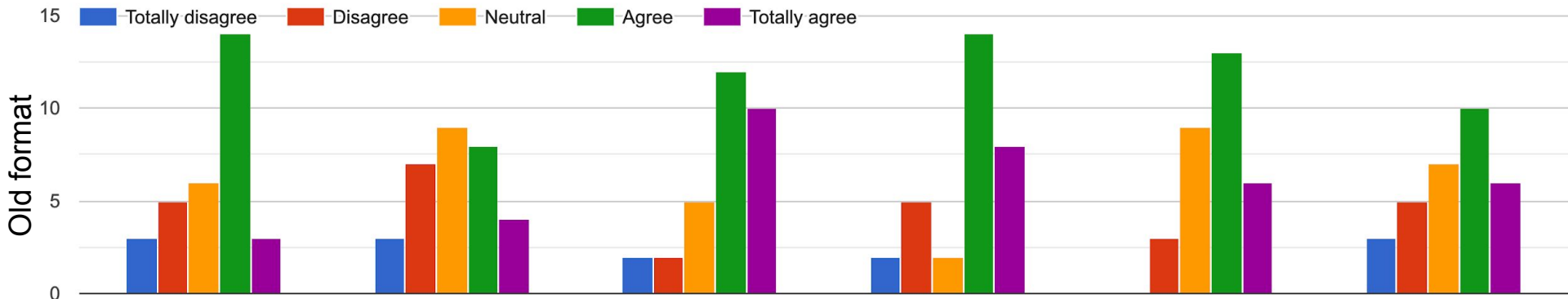


Do the next one!

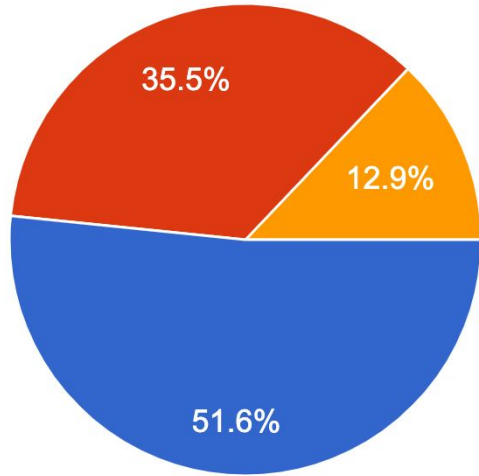
# Results



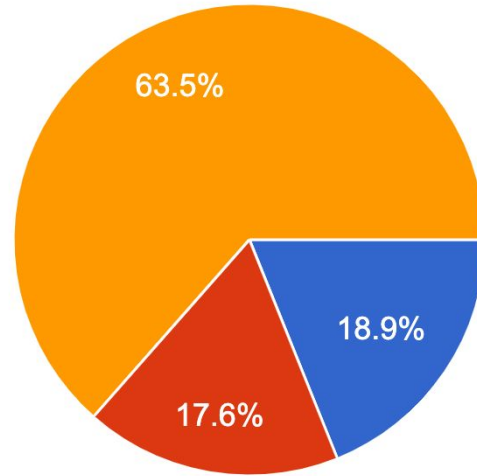




We asked the students if they thought they would have gotten a better grade if the course was delivered in the format opposite of their own. Here are their answers:



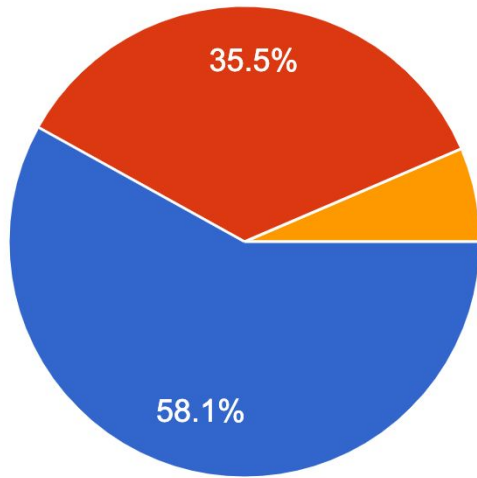
Old format



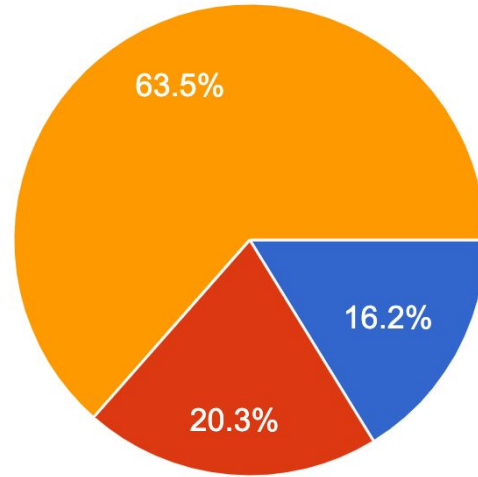
New format

- I think I would have gotten a better grade
- I think I would have gotten the same grade
- I think I would have gotten a worse grade

We asked the students if they thought they would have learned more if the course was delivered in the format opposite of their own. Here are their answers:



Old format



New format

- I think I would have learned more
- I think I would have learned about the same
- I think I would have learned less

# Conclusions

- Students were incentivized to learn from their mistakes and felt empowered
- Individual and collective progress easy to track
- Instructors' effort spent on more meaningful activities
- High perception of fairness - minimum complaints!
- Equitable and flexible but easy to manage - no exceptions required

More tweaking required:

- Grading system
- Students' motivation beyond the classroom

# LEARN MORE.....

BS Bloom, "**Learning for Mastery. Instruction and Curriculum**", Regional Education Laboratory for the Carolinas and Virginia Topical Papers and Reprints Number 1. Evaluation comment, vol. 1, no. 2, pp. n2, May 1968.

T. Wrigstad and E. Castegren, "**Mastery Learning-Like Teaching with Achievements**", SPLASH-E 2017, October 22–27, 2017.

E. Baniassad, A. Campbell, T. Allidina and A. Ord, "[Teaching Software Construction at Scale with Mastery Learning: A Case Study.](#)" 2019 IEEE/ACM 41st International Conference on Software Engineering: Software Engineering Education and Training (ICSE-SEET), 2019.

<https://www.gettingsmart.com/2019/08/28/what-is-mastery-learning/>

<https://www.cultofpedagogy.com/mastery-based-grading/>



THE UNIVERSITY OF BRITISH COLUMBIA  
Department of French, Hispanic & Italian Studies

# RMST 202

Romance Studies,  
Modernism to the Present

## Contract Grading

with Jon Beasley-Murray  
and Patricio Robles

[rmst202.arts.ubc.ca](http://rmst202.arts.ubc.ca)





# THE COURSE

- RMST 202: “Introduction to Literatures and Cultures of the Romance World II: Modern to Post-Modern”
- A survey of Romance Language literature: Spanish, French, Italian, Portuguese, Catalan, Romanian
- Europe, the Americas, Africa
- Modernism (1910s) to the Present

UBC THE UNIVERSITY OF BRITISH COLUMBIA

RMST 202 Literatures and Cultures of the Romance World II: Modern to Post-Modern

Home About Syllabus Authors Texts Concepts Lectures Videos Blogs Assessment Playlist

**Welcome to RMST 202**  
An introduction to the main themes that shaped the Romance World in the age of the nation state, imperialism, colonization, and decolonization.

**A World of Difference**  
If the hallmark of literary representation is that it is an unfaithful representation of the real, then perhaps the most literary texts are those that betray (disclose or let slip) that infidelity even as they indulge in it themselves.

**Student Blogs**  
[Full list of Student Blogs>>](#)  
[My Concluding Farewell to RMST 202!](#)  
[My Concluding Farewell to RMST 202!](#)  
[Agualusa on Reluctant Dreamers](#)  
[Agualusa on Reluctant Dreamers](#)

**Tags**  
[announcements](#) [C20th](#) [childhood](#) [communism](#) [death](#) [Dreams](#) [Family](#) [fiction](#) [France](#) [gender](#) [history](#) [identity](#) [Italy](#) [language](#) [life](#) [literature](#) [love](#) [memories](#) [memory](#) [Mexico](#) [modernism](#) [narration](#) [narrative](#) [perspective](#) [Poetry](#) [politics](#) [postmodernism](#) [power](#) [questions](#) [reality](#) [reflection](#) [relationships](#) [repetition](#) [revolution](#) [Romance Studies](#) [Spain](#) [Surrealism](#) [temporality](#) [time](#) [trauma](#) [truth](#) [videos](#) [violence](#) [war](#) [writing](#)

Watch on YouTube

[Transcript](#) | [Slides](#)





- Literature Requirement
- 76 Students
- 2 TAs

# OPEN EDUCATION

- Open Website
- Flipped Classroom
- YouTube Lectures
- Student Blogs

The screenshot shows the YouTube channel page for 'UBC Romance Studies', which has 66 subscribers. The channel banner features a colorful mosaic pattern. The navigation menu includes 'Home', 'Videos', 'Playlists', 'Channels', and 'About'. The main video player displays a video titled 'Inventing Romance Studies' with a thumbnail showing a glass of yellow beverage and a can of 'INCA KOLA'. The video description states: 'Romance Studies emerges when tradition is infiltrated and overthrown by the demotic, by the everyday speech of a nameless multitude.' It is attributed to Jon Beasley-Murray, University of British Columbia. Below the main video, there is an 'Uploads' section with a 'PLAY ALL' button and five video thumbnails. The thumbnails are: 1. 'Agostino: Alberto Moravia and the Return of the Real' (16:51); 2. 'Bonjour Tristesse: Françoise Sagan on Translation and Affect' (19:56); 3. 'Black Shack Alley: Zobel, Development, and Writing' (19:39); 4. 'On Roberto Bolaño, Amulet' (21:43); 5. 'Norman Manea in Conversation' (42:41). The fourth video has 52 views and was uploaded 1 month ago.

# FLEXIBLE PATHWAYS

- Excessive Syllabus
- Optional Texts
- Student Choice
- Contract Grading

<a href="#">Agualusa</a>	>
<a href="#">Aragon</a>	>
<a href="#">Bolaño</a>	>
<a href="#">Bombal</a>	>
<a href="#">Cercas</a>	>
<a href="#">Ferrante</a>	>
<a href="#">Fuentes</a>	>
<a href="#">Laforet</a>	>
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<a href="#">Sagan</a>	>
<a href="#">Zobel</a>	>

## Tags

[announcements](#) [C20th](#) [childhood](#) [communism](#) [death](#) [Dreams](#) [Family](#) [fiction](#) [France](#) [gender](#) [history](#) [identity](#) [Italy](#) [language](#) [life](#) [literature](#) [love](#) [memories](#) [memory](#) [Mexico](#) [modernism](#) [narration](#) [narrative](#) [perspective](#) [Poetry](#) [politics](#) [postmodernism](#) [power](#) [questions](#) [reality](#) [reflection](#) [relationships](#) [repetition](#) [revolution](#) [Romance Studies](#) [Spain](#) [Surrealism](#) [temporality](#) [time](#) [trauma](#) [truth](#) [videos](#) [violence](#) [war](#) [writing](#)

## Authors



[José Eduardo Agualusa](#)



[María Luisa Bombal](#)



[Carlos Fuentes](#)



[Norman Manea](#)



[Marcel Proust](#)



[Joseph Zobel](#)



[Louis Aragon](#)



[Javier Cercas](#)



[Carmen Laforet](#)



[Alberto Moravia](#)



[Mercè Rodoreda](#)



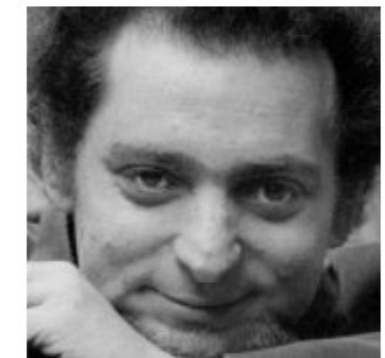
[Roberto Bolaño](#)



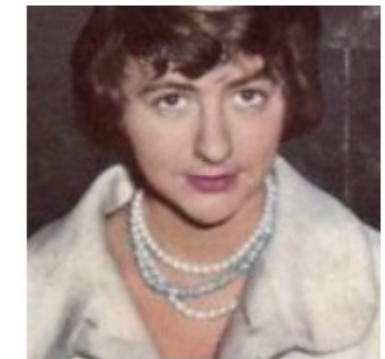
[Elena Ferrante](#)



[Clarice Lispector](#)



[Georges Perec](#)



[Françoise Sagan](#)



# CONTRACT GRADING

# Assessment

This course uses “contract grading.” This means that you choose in advance the work you will do, and receive a relevant grade so long as you fulfil that contract.

The four texts you *have* to read in order to pass this class are those by Proust, Bombal, Perec, and Bolaño. If you do not read these four, you will not pass the class. If you do, you will pass.

All the other texts are optional, but your grade will rise the more that you read.

How do you show that you have read them? You write and publish a blog post, of around 400-500 words (or with an embedded video blog of 5-10 minutes), and comment briefly on two blogs posts written by your classmates and peers. (More details [here](#).)

You will also write an introductory blogpost (in week one), and a concluding blogpost (in week 13), reflecting on what you have learned.

The more books that you read (and so blogposts and comments that you write), the higher your grade will be, as follows:



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The more books that you read (and so blogposts and comments that you write), the higher your grade will be, as follows:

Number of texts read / blogposts written	Percentage Grade	Final Letter Grade
4 (Proust, Bombal, Perec, and Bolaño) / 6	60-63	C
5 (the basic four plus one) / 7	64-67	C+
6 (the basic four plus two) / 8	68-71	B-
7 (the basic four plus three) / 9	72-75	B
8 (the basic four plus four) / 10	76-79	B+
9 (the basic four plus five) / 11	80-84	A-
10 (the basic four plus six) / 12	85-89	A
11 (the basic four plus seven) / 13	90-100	A+

You can choose which books you read and write on (after the basic four). Some weeks you have more than one option. There is a guide to help you choose [here](#).

You tell me in advance how many and which books you plan to read. This is your contract. In return, if you fulfil that contract, I guarantee you the appropriate grade. Fill out your contract [here](#) ([PDF](#)).

Over the course of the semester, you are allowed to make one, and only one, revision of your contract (changing the choice of books, or the number of books, to get a higher or a lower grade). No changes are permitted after week six (February 17).

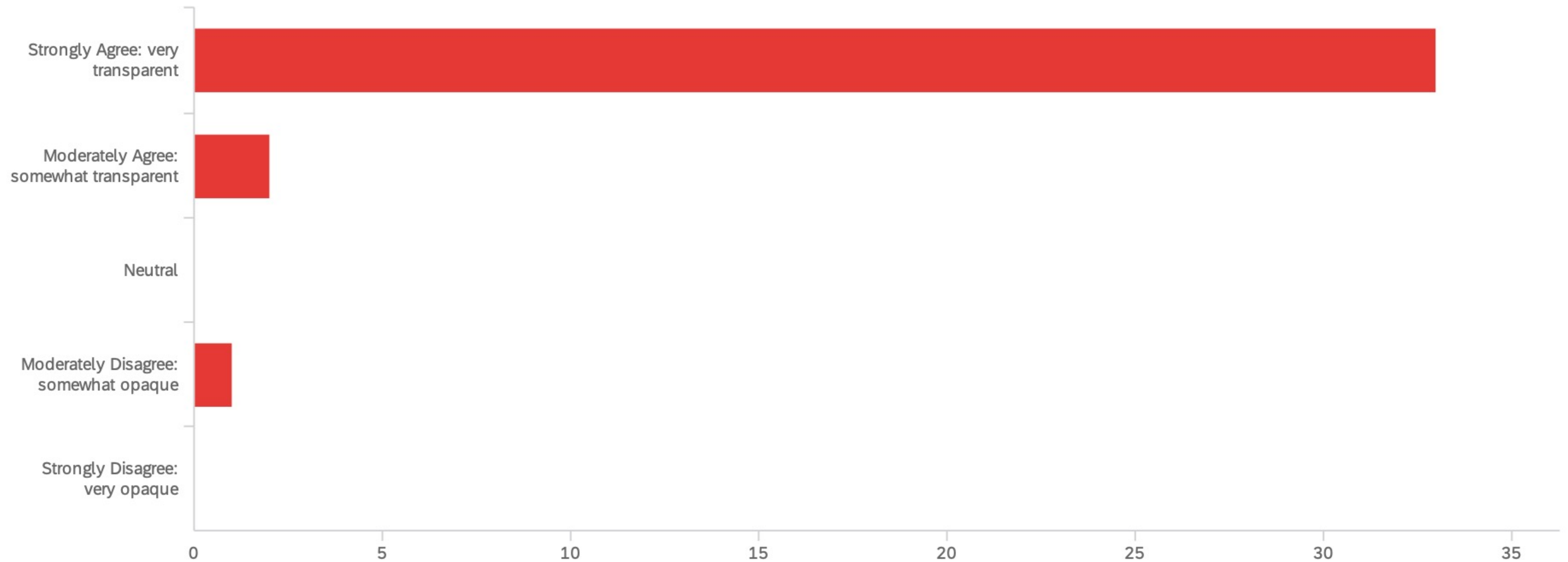
- Individual contracts, signed and counter-signed
- One chance to amend the contract (up / down / same)
- The more effort they put in, the higher the grade
- Highest grades meant reading a book a week
- Lowest grades meant four books, attending six weeks
- Very little qualitative evaluation: almost all quantitative
- Failed contracts meant new ceiling and new rules



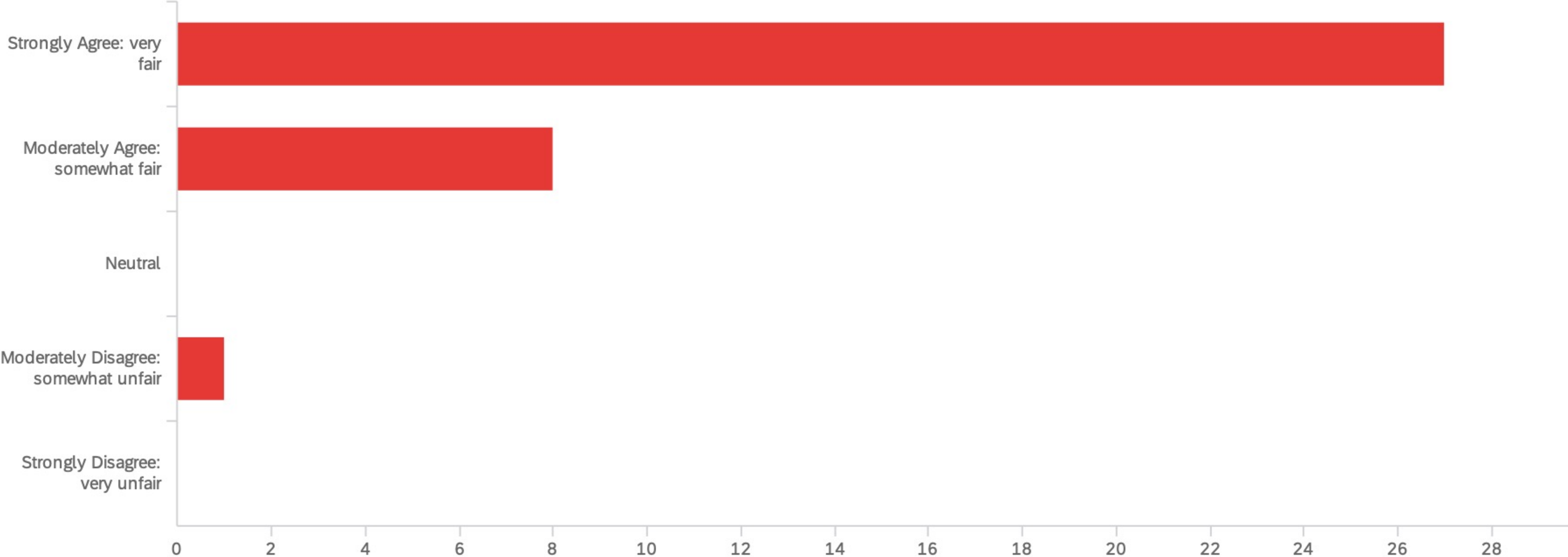
# STUDENT REACTIONS



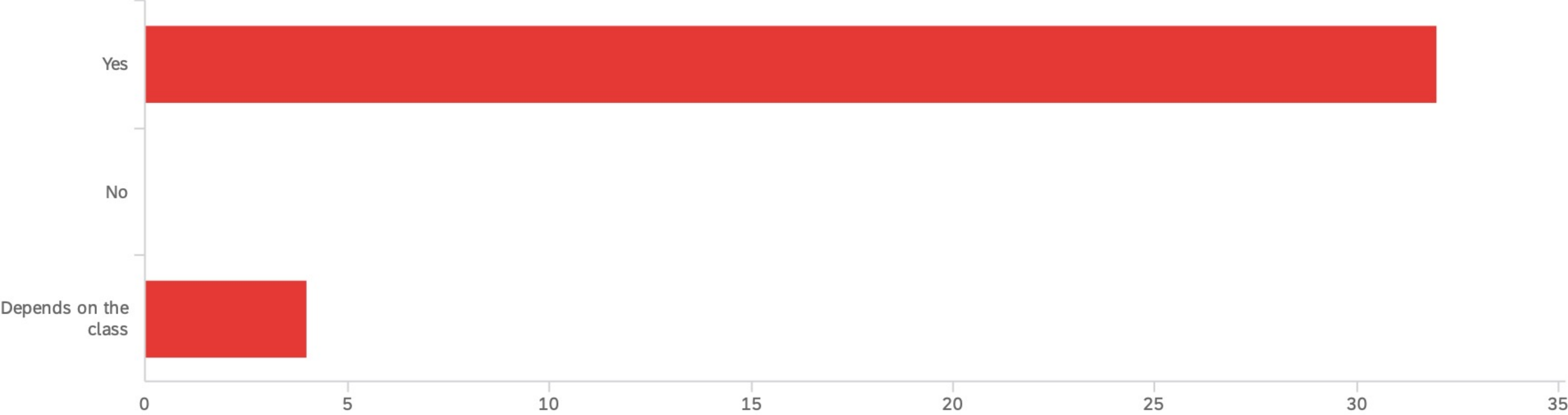
## Q25 - 3. Was the grading system transparent?



# Q26 - 4. Was the grading system fair?



# Q27 - 5. Do you wish more of your classes used contract grading?







# OUR CONCLUSIONS

Did students get the same grades as they would have done under a more traditional system of evaluation? No. But nor should we expect them to.

Here, most students did better than they would have done otherwise. (Some surely did worse.)

Students reported that they worked at least as hard, and generally harder, than in comparable courses.

Our goal should not be student satisfaction. It should be to encourage thought and to produce concepts, which may sometimes cause discomfort.

But we should still listen to students, and trust them. Part of that must involve **relinquishing some of the power of the grade.**



# MORE INFO

<http://rmst202.arts.ubc.ca>

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[parobles@mail.ubc.ca](mailto:parobles@mail.ubc.ca)

<https://publichumanities.ubc.ca/ubc-professor-shakes-up-romance-studies-in-experimental-course/>

[https://rmst202.sites.olt.ubc.ca/files/2022/05/rmst202\\_article.pdf](https://rmst202.sites.olt.ubc.ca/files/2022/05/rmst202_article.pdf)

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**“Is this an automatic  
100%?”**

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4 terms of ungrading graduate school

Julia Bullard, Assistant Professor  
UBC School of Information

1



## LIBR 509 Course Context

**School of Information**

- Graduate degree, professional program
- Relatively technical courses: Information organization system design and evaluation
- High stress, high uncertainty environment

**COVID**

- Needing to reduce student stress
- Needing to make flexibility the default rather than a response to accommodations
- Moving swiftly from incremental adjustments toward full ungrading

**Animal Cruelty**

- RT Animal Killing
- RT People for the Ethical Treatment of Animals

**Animal Ethics**

- BT Ethics
- NT Animal Killing

**Animal Killing**

- BT Ethics
- RT Animal Cruelty

**Diet**

- NT Vegetarianism → *NT Veganism*

**Ethics**

- UF Morals
- NT Animal Ethics

**Morals USE Ethics**

**PETA USE People for the Ethical Treatment of Animals**

**People for the Ethical Treatment of Animals**

- UF PETA
- RT Animal Cruelty
- RT Veganism

**Plant-based USE Vegetarianism**

- Veganism** → *BT Diet*
- RT Vegetarianism
- RT People for the Ethical Treatment of Animals

**Vegetarianism**

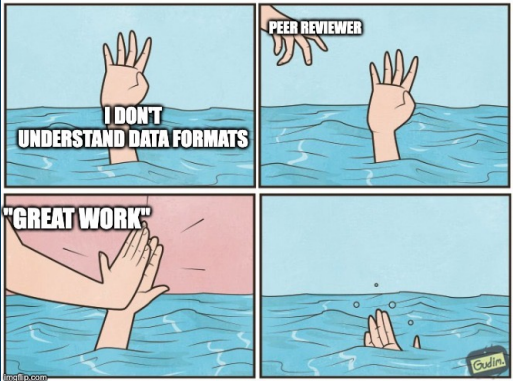
- UF Plant-based
- BT Diet
- RT Veganism

Photo by Ted Eytan, distributed under a cc-by-sa-2.0 license






Excerpt from student work, shared with permission

2

# Key course components



Student meme

-  Weekly assignments
-  Peer review
-  Midterm and end-of-term meetings
-  Self-evaluation form & self-assessed letter grade
-  Portfolio & self-reflection

3

n	y	3		y	y	3		y	y	3		bw
y	y	2	bw	y	y	2		y	y	0		bw
y	y	3	bw		y	3		missed-er	y	0		bw
n	n	n/a			n/a			n	n/a			n/
y	y	3	bw	y	y	3			y	3		bw
y	l	n/a	bw	y	l	n/a			l	n/a		n/
y	y	3	bw		y	3			y	3		bw
l	l	n/a	bw	y	l	n/a			l	n/a		n/
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y	y	3		y	y	3	bw	y	y	3		bw
y	y	3			y	3	bw	y	y	3		bw
y	n	n/a		n	n	n/a		y	y	0		bw

A snapshot of our spreadsheet overview of student submissions and peer feedback activity

## Tracking and Feedback

**How we know how it's going**

- Assignment submission, attendance, and peer review tracking sheet
- End of course reflections from students
- Aggregate student self-evaluations
- End of term outcomes
- Extensive feedback discussion & survey in Fall 2021

4

## Outcomes

Before 509



I'm going to be an information specialist!

After 509



What is information?

Student meme

1

Around ¼ of students submit all 9 weekly assignments on time

2

¾ of students eventually submit all 9 weekly assignments

3

Students report less stress and more capacity to focus on their learning

4

Some students struggle without the urgency and threat of hard deadline and late penalties

5

Grade average and distribution unchanged from traditional grading terms

5

## Advice

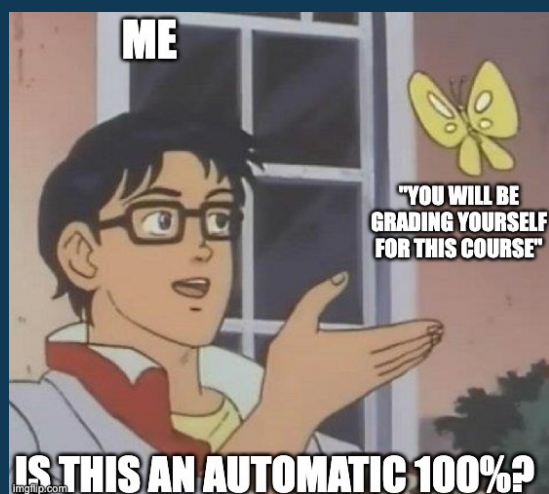
Have open discussions (early and often) about grades

Accept that even a flexible system is not ideal for all students

Keep track of what's happening

Don't expect to save time by not grading

Be open to student feedback

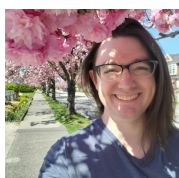


Student meme

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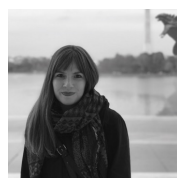
## With thanks to

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**Bri Watson**

iSchool PhD Student  
Teaching Assistant



**Sarah Gilbert**

Research Manager, Citizens and  
Technology Lab  
Former Teaching Assistant



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