PLAGIARISM

Let's shed some light
on the dark subject.

Madoka Gray-Mitsumune
CSPB Education Committee
Concordia University

UNIVERSITÉ Concordia UNIVERSITY

http://www.bbc.co.uk/news/world-europe-12608083
http://www.bbc.co.uk/news/world-europe-17586128
http://www.bbc.co.uk/news/world-europe-21395102

- **These politicians plagiarized their Ph.D. Theses.**
- **Their degrees were stripped off.**
- **They resigned from the post.**

Plagiarism

- It is the most common type of academic misconduct.
- "The presentation of the work of another person as one's own or without proper acknowledgement"
  - Concordia University Academic Code of Conduct Article 16a
- Copying from another students.
- Copying from publications, online sources, etc.
- Exam, take-home exam, assignment, essays, thesis, etc.

Reality check

- Help is just a click away.
  - E-mail/social networks
  - BitTorrent
  - Essay mill

Example 1: Lab reports

Student A **Fall 2011**	In part C, we want to analyze the activity of β-galactosidase by measuring the OD420, OD550 and OD600. Moreover, we utilize the optical density values along with the time and culture volume at which the assay was performed to calculate the units of β-galactosidase. The anticipated activity of β-galactosidase is shown in table 3.1.1 and we predict that the strains with high activity such as CAG12033+IPTG and ML308 with/without IPTG will show a higher value of β-galactosidase unit compared to the strains with low activities.
Student B **Fall 2012**	In part C of this experiment, the activity of β-galactosidase was analysed by measuring the OD420, OD550 and OD600. In addition, the time and the culture volume was recorded in order to calculate the units ofβ-galactosidase. In the table 3.1 and 3.2 from the results had showed that the strains with high activity such as CAG12033+IPTG and ML308 with/without IPTG will show a higher value of β-galactosidase unit compared to the strains with low activities.

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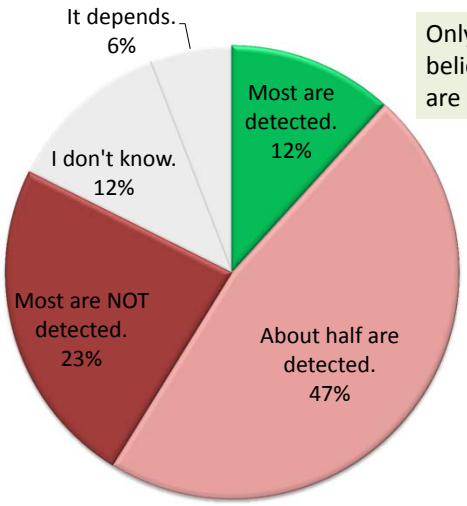
CSPB Student survey: In your opinion, how effectively do professors find plagiarism?

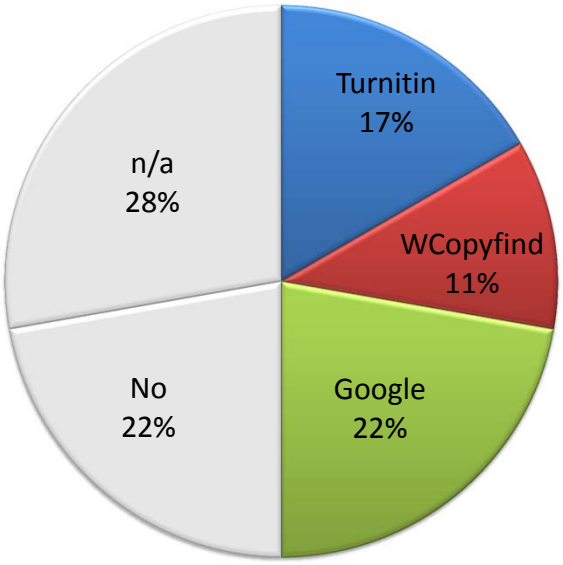


Only 12 % of students believe plagiarism cases are caught effectively.

Response: 17

How do instructors detect plagiarism?

Do you use plagiarism detection software?



Response: 18

Look for warning signs

- Identical contents submitted by two or more students.
- Sudden writing style changes.
- Unusually large number of references.

Identify the source using a search engine

Google

Google

Advantage
- Easy & free.
- No copy right/privacy issues.

Disadvantage
- Query word limit is 32.
- Not all sources are in the public domain.
  - Most students' works are not published.
- Instructor/TA must identify suspicious segments before searching.
  - Can't detect cases if plagiarized work is not graded at the same time as the original work.

Plagiarism scanning using WCopyfind

(free software)

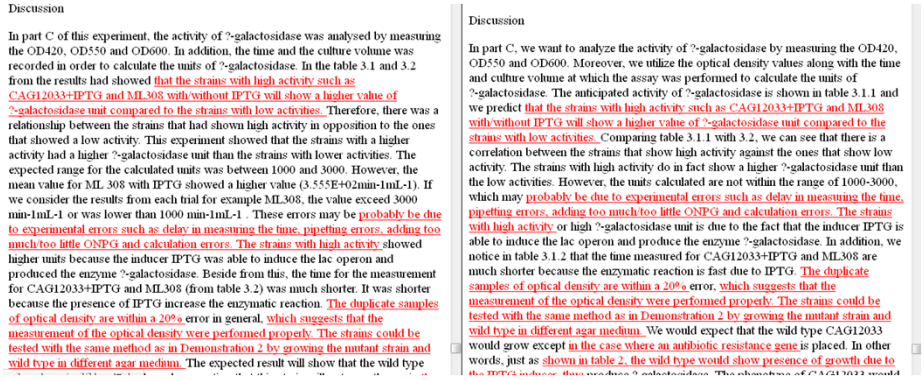
Students submit files to the course management system.

Instructor downloads files and scan documents in a local computer.

Database is maintained by the instructor.

WCopyfind is developed by Dr. Lou Bloomfield, physics professor at the University of Virginia.
http://plagiarism.bloomfieldmedia.com/z-wordpress/software/wcopyfind/

Example result



Discussion

In part C of this experiment, the activity of ?-galactosidase was analysed by measuring the OD420, OD550 and OD600. In addition, the time and the culture volume was recorded in order to calculate the units of ?-galactosidase. In the table 3.1 and 3.2 from the results had showed that the strains with high activity such as CAG12033+IPTG and ML308 with/without IPTG will show a higher value of ?-galactosidase unit compared to the strains with low activities. Therefore, there was a relationship between the strains that had shown high activity in opposition to the ones that showed a low activity. This experiment showed that the strains with a higher activity had a higher ?-galactosidase unit than the strains with lower activities. The expected range for the calculated units was between 1000 and 3000. However, the mean value for ML 308 with IPTG showed a higher value (3.555E+02min-1mL-1). If we consider the results from each trial for example ML308, the value exceed 3000 min-1mL-1 or was lower than 1000 min-1mL-1 . These errors may be probably be due to experimental errors such as delay in measuring the time, pipetting errors, adding too much/too little ONPG and calculation errors. The strains with high activity showed higher units because the inducer IPTG was able to induce the lac operon and produced the enzyme ?-galactosidase. Beside from this, the time for the measurement for CAG12033+IPTG and ML308 (from table 3.2) was much shorter. It was shorter because the presence of IPTG increase the enzymatic reaction. The duplicate samples of optical density are within a 20% error in general, which suggests that the measurement of the optical density were performed properly. The strains could be tested with the same method as in Demonstration 2 by growing the mutant strain and wild type in different agar medium. The expected result will show that the wild type

Discussion

In part C, we want to analyze the activity of ?-galactosidase by measuring the OD420, OD550 and OD600. Moreover, we utilize the optical density values along with the time and culture volume at which the assay was performed to calculate the units of ?-galactosidase. The anticipated activity of ?-galactosidase is shown in table 3.1.1 and we predict that the strains with high activity such as CAG12033+IPTG and ML308 with/without IPTG will show a higher value of ?-galactosidase unit compared to the strains with low activities. Comparing table 3.1.1 with 3.2, we can see that there is a correlation between the strains that show high activity against the ones that show low activity. The strains with high activity do in fact show a higher ?-galactosidase unit than the low activities. However, the units calculated are not within the range of 1000-3000, which may probably be due to experimental errors such as delay in measuring the time, pipetting errors, adding too much/too little ONPG and calculation errors. The strains with high activity or high ?-galactosidase unit is due to the fact that the inducer IPTG is able to induce the lac operon and produce the enzyme ?-galactosidase. In addition, we notice in table 3.1.2 that the time measured for CAG12033+IPTG and ML308 are much shorter because the enzymatic reaction is fast due to IPTG. The duplicate samples of optical density are within a 20% error, which suggests that the measurement of the optical density were performed properly. The strains could be tested with the same method as in Demonstration 2 by growing the mutant strain and wild type in different agar medium. We would expect that the wild type CAG12033 would grow except in the case where an antibiotic resistance gene is placed. In other words, just as shown in table 2, the wild type would show presence of growth due to

WCopyfind

Advantage

- Free software
- Database is maintained and scanned locally.
  - No copy right/privacy issues.
- It compares documents against each other and against archived documents in the database.

Disadvantage

- It does not compare against documents in the public domain.
  - Instructors must download the original documents.
- More work for instructors.

Plagiarism scanning using Turnitin

(Institutional subscription required)

turnitin

Database is maintained by the Turnitin server.

Students submit files to the Turnitin server.

Turnitin provides originality reports.

Instructors and/or TAs receive the results

turnitin.com

Case study: Turnitin at U of Toronto

Dr. Ingo Ensminger

- Multi-section lab course with ~ 350 students.
- Must rely on TA for grading and plagiarism detection.
- TAs verify the scan results to distinguish false positives.
- Eliminate inconsistencies among different TAs.
- So far, no students refused to submit their works.
- 3-4 plagiarism cases per term.

Turnitin

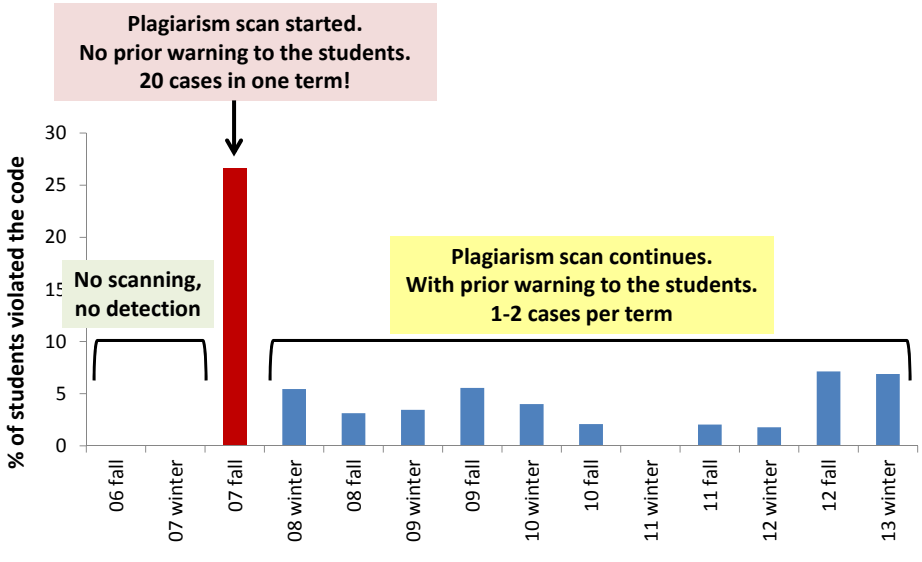
Advantage

- No cost to the instructor.
- It compares a document against publications and against archived documents in the database.
- Streamlined submission/reporting process.
  - Less work for instructors.

Disadvantage

- Expensive
- Files are submitted and maintained in the Turnitin server
  - Copy right/privacy issues

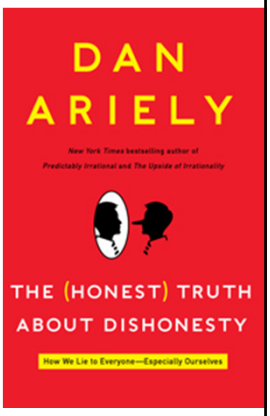
Code of conduct cases in BIOL368 lab reports



(Average course enrollment: 60)

Reality check

- People cheat more if nobody is watching.
- People cheat even more when they witness somebody else is getting away with cheating.
- People cheat less if they think they are being monitored.



Dan Ariely "The (honest) truth about dishonesty"

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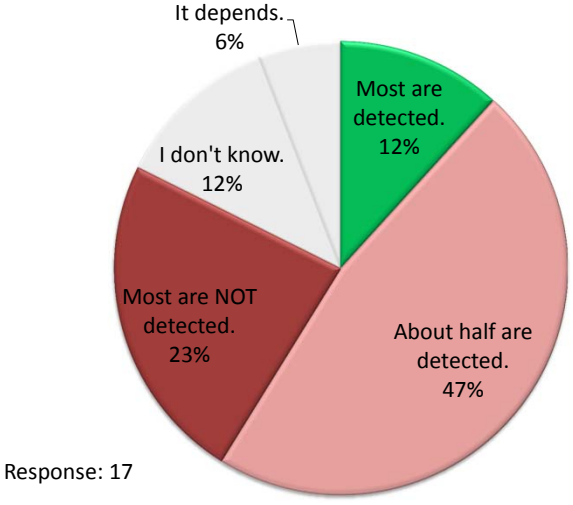


Response: 17

Only 12 % of students believe plagiarism cases are caught effectively.

This perception can further promote the culture of cheating.

Efficient plagiarism monitoring can significantly reduce cheating incidences.

Plagiarism scanning deters plagiarism

- ~ 25 % students plagiarized when they were not warned about the plagiarism scanning.
- Plagiarism cases decreased dramatically (down to ~ 4 %) when they were warned about the plagiarism scanning.

CSPB faculty & student survey results

Dr. Emily Indriolo
University of Toronto

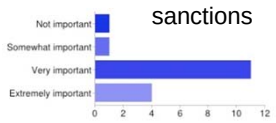
Students perceive plagiarism differently than faculty

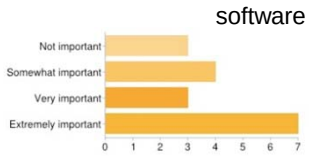
Most students desired stricter sanctions on students
- 65% - very important 24% extremely important
- while faculty were 67% somewhat important

Over 50% of students thought software was either very or extremely important
-61% of faculty thought it was somewhat important

-clearly this is correlated with the fact that the students are doing the 'front line' marking and assessment of student papers

- undergraduate and graduate education location





Emily Indriolo

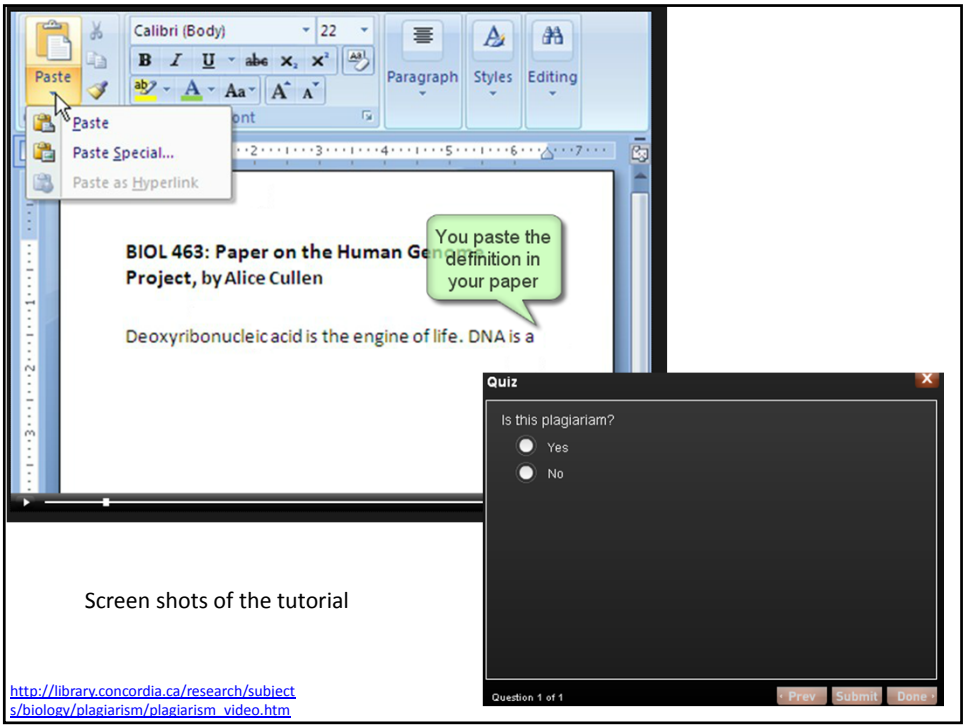
What should we do to deter plagiarism?

- Educate.
- Avoid assignments that can be plagiarized easily.
- Identify and punish. Use this opportunity to educate.

Three simple rules

- Common knowledge → No need to cite.
- Direct copy → Put quotation marks " " and cite.
  - Should be used in special situations. (definitions, personal statements, etc.)
- Paraphrase using your own words and cite (most cases).

Check out this self-tutorial video created by Concordia Librarian Danielle Dennie:
http://library.concordia.ca/research/subjects/biology/plagiarism/plagiarism_video.htm



Screen shots of the tutorial

http://library.concordia.ca/research/subjects/biology/plagiarism/plagiarism_video.htm

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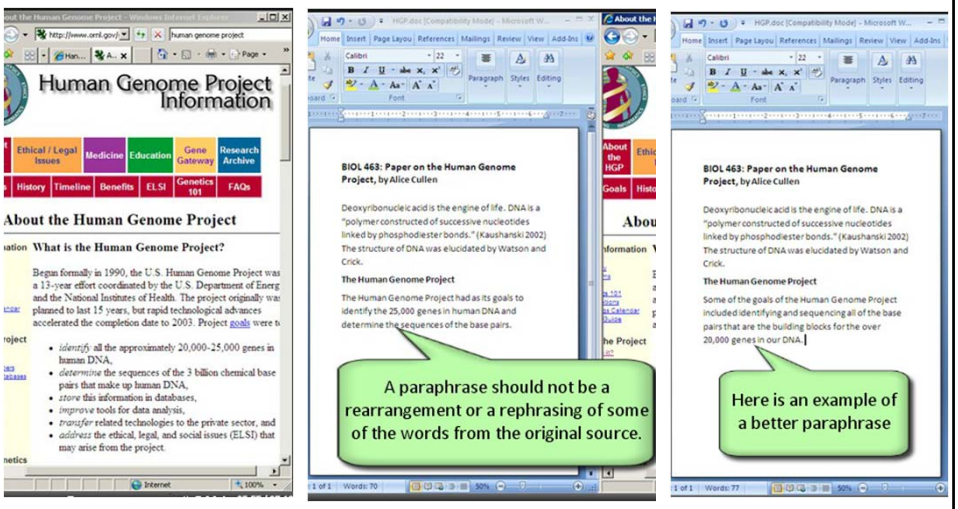

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Example 2: Essay

Wong et al. 2009	Neurog3 (Neurogenin 3 or Ngn3) is both necessary and sufficient to induce endocrine islet cell differentiation from embryonic pancreatic progenitors. Since robust Neurog3 expression has not been detected in hormone-expressing cells, Neurog3 is used as an endocrine progenitor marker and regarded as dispensable for the function of differentiated islet cells. Here we used 3 independent lines of Neurog3 knock-in reporter mice and mRNA/protein-based assays to examine Neurog3 expression in hormone-expressing islet cells. Neurog3 mRNA and protein are detected in hormone-producing cells at both embryonic and adult stages. Significantly, inactivating Neurog3 in insulin-expressing cells at embryonic stages or in Pdx1-expressing islet cells in adults impairs endocrine function, a phenotype that is accompanied by reduced expression of several Neurog3 target genes that are essential for islet cell differentiation, maturation, and function. These findings
Student essay	In hormone-expressing cells, Neurog3 is used as an endocrine progenitor marker and regarded as dispensable for the function of differentiated islet cells (Wang et al., 2009). Three different functional assays approaches were used to assess the localization, function and the phenotypic appearance resulting from different types of mutations introduced into this gene. Gene knock-in approach examined *Neurog3* expression in hormone-expressing islet cells. *Ngn3* mRNA and protein levels were detected at embryonic and adult developmental stages. The *lacZ* gene replacing *Ngn3* gene has shown that Ngn3 is expressed in hormone expressing cells e.g. insulin secreting cells. Inactivating *Neurog3* in *insulin*-expressing cells at embryonic stages or in *Pdx1*-expressing islet cells in adults impairs endocrine function, a phenotype that is accompanied by reduced expression of several *Neurog3* target genes that are essential for islet cell differentiation, maturation, and function (Wang et al., 2009).

Reality check

- Some students think it is OK to copy directly from the source as long as they provide the citation.

Case study: Challenges for foreign-educated students

Dr. Anja Geitmann

Université de Montréal

- Many of us allow students to incorporate direct copies of figures and tables into their essays.
- Where do we draw the line for accepting direct copies?

Reality check

- Some countries encourage students to do direct copies to 'improve' their English skills.
- Foreign-educated students may not understand the instruction due to poor language skills. They need direct feedback on their work.
- Plagiarism sanction weighs heavier on graduate students. They may have to leave the program if they receive C or F.

My humble suggestion: Create direct feedback opportunities

- Incorporate a small assignment near the beginning of the term. Should be something that is easy to plagiarize such as article summary.
- Identify cases of plagiarism and inappropriate citations.
- Penalize and educate the student before moving onto a large assignment.
- This approach also works for improving students' writing skills.

Educator's voice

Dr. Rob Guy, UBC

"I usually give students one chance based on the principle of "benefit of the doubt" -- ***let's call it a learning opportunity****. "*

Dr. David Bird, Mount Royal U

"When students plagiarize, it is as important to ensure that an appropriate sanction is applied, both as a deterrent and to ensure fairness, but also ***the educational opportunity should not be ignored.*** *Rather than simply "punish," we must also make every reasonable effort to educate the student so that they do not plagiarize a second time."*