CO 480 Editorial Review – Spring 2015

Reviewer

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Project Information

Person Isaac Newton
Place not obvious
Problem Discovery of Calculus

Summary and Evaluation

Completeness - Person 1
Completeness - Place 0
Completeness - Problem 1
Evaluation Needs Lots of Work

Overall, this report needs significant work in both content and quality of writing. While the project describes in sufficient detail the life of Isaac Newton prior to his mental breakdown in 1693, this leaves a major gap in the history of the person. Additionally, there is no clear place section that identifies the historical backdrop to Newton's work. While an attempt is made to describe the need for calculus beginning from Ancient Greece, this section is simply a restatement of the course lectures. Furthermore, each individual section of this history attempt is not in-depth enough to constitute a description of the place and background of Newton's work. With respect to the mathematics, this paper simply presents simple concepts (e.g. Binomial Theorem) that have been presented numerous times in core mathematics classes. These concepts are not treated in a new way - they are simply direct copies of existing works. While there is some promise when the report deals with applications of calculus, no section is developed thoroughly enough to present any new mathematical knowledge to the reader.

In terms of quality of writing, the report leaves much to be desired. The report has numerous grammatical errors (inconsistent capitalization, incorrect punctuation, etc.) as well as many typographical errors. Many sections do not seem to add value to the report and are difficult to follow. A more detailed outline may help the authors reconstruct the report in a way that will flow better to present an easier to follow report. While the report has a number of valuable sources, there are many passages which are directly quoted or taken from sources with no citation provided. Finally, the report has large portions of whitespace, and even then only uses 16 of the possible 20 pages, leaving a large amount of room to provide additional details and expand on the topics presented.

Fact Checking

Most fact are correct, and there are few major omissions. The following are omissions, that if included, would enhance the report.

- Omission, Page 1, Line +4: While the date of Newton's birth is accurate according to some records, the report does not discuss the change from the Julian to the Gregorian calendar which has caused some ambiguity as to the exact date of birth. Alternate date is January 4, 1643
- Omission, Page 3, Line +10: While Newton's Principia was not printed until 1687 as stated, it was actually presented to the Royal Society and accepted for publication early in 1686 and a series of discussions and politicking delayed its publication. A discussion of these reasons would have enhanced the report. `http://users.clas.ufl.edu/ufhatch/pages/13-NDFE/newton/05-newton-timeline-m.htm`
- Dispute, Page 4, Line –10: The claim that Elements had more editions that the Bible was not substantiated.
- Omission, Page 13, Section 3.1.4: This section is missing significant depth on the dispute between Leibniz and Newton regarding the invention of the calculus. Specifically, the authors present a case that lays the root of the conflict squarely at the feet of Leibniz. However, this was not the case. A number of other actors were involved with the dispute, and this passage does a disservice to the reader in not providing the full context of the dispute. `http://pages.cs.wisc.edu/~sastry/hs323/calculus.pdf`

Editing

- Rewriting these parts to improve clarity and readability
  - Page 2, Line +12, 13: Replace "As a sizar, even though ..." with "Though his family was quite wealthy, Newton had to work as a sizar, like a servant, for his classmates"
  - Page 3, Line +13,14,15: The sentence "During his collegiate years ..." is a run on sentence. Consider splitting after "advanced mathematics of the day"
  - Page 2, Line –5,–4,–3,–2: The sentence "Although there were ..." is a run=on sentence. Consider splitting after "advanced mathematics of the day".
  - Page 5, Line +12,13: The sentence "Making philosophies as ..." does not make sense on its own. Consider combining the sentence prior to it. "In contrast to Plato's methodologial approach to biology by performing experiments and observations, Aristotle approached physics from a more philosophical manner"
  - Page 5, Line +15: Consider rewriting "these philosophies were taken as the truth by people" as "people took these philosophies as the truth for"
  - Page 5, Line +15: Change "range from" to "span"
  - Page 5, Line+16: Insert Oxford comma to change "logic and biology" to 'logic, and biology"
  - Page 5, Line –18: The sentence "For example, the root ..." does not make sense.

- Page 5, Line –14: The sentence "... motion on an object ... acting upon it" should read "another object acting upon a given object causes motion on the other object"
- Page 5, Line +1: The sentence "Various views ..." is a run-on sentence. Consider splitting at "Ptolmey"
- Page 6, Line +1,+2,+3: Rewrite the sentence "Various views..." as "For over a thousand years, various views existed about the arrangement of the Earth, sun, planets and stars"
- Page 6, Section 2.1.2: Change the title heading from "Islamic Golden Age" to something such as "The Awakening of Europe" or include additional information about Islamic scholars as the section does not currently focus on Islamic scholars.
- Page 6, Line -1: The ending of the sentence "... being seemingly true" is awkward.
- Page 8, Line +4, +5: The sentence "Even in relatively low speed... launching off an already moving object is to be left behind" is wordy and confusing.
- Page 8, Line +21: It's not clear which book is being referred to.
- Page 9, Line +1,+2,+3: This sentence does not make sense.
- Page 11, Line +2, +3: "The discovery of tangents were most important ... accelerations, for example." Try to reword this to be more direct.
- Page 13, +5,+6: It is not clear why being useful in understanding partial derivatives makes Leibniz notation the standard notation for calculus.
- Page 14, Line –2: It is not clear how having different notation resulted in the accreditation that they both invented calculus independently.
- Page 15, Line +1: This sentence is incomplete since it does not express a full thought.
- Page 15, Line –2,–3,–4:"Primarily dealing with ... which creates chemical compounds" is a sentence fragment
- Page 16, Line +10: The paragraph jumps abruptly from "securities" to "bonds".

- Remove extraneous words and reduce wordiness. This will also minimize the passive voice in the writing
  - Page 1, Line –2: Remove "off"
  - Page 1, Line –1: Remove "any"
  - Page 2, Line +4: "had to go sell the produce of the farm to the market" is wordy
  - Page 2: Line +7: replace "Headmaster, Mr. Stokes" with "Headmaster Stokes"
  - Page 2, Line +7: replace "they were able to convince" with "convinced"
  - Page 2, Line +8: replace "let Newton return" with "let him return"
  - Page 2, Line +15: replace "would later write" with "later wrote"
  - Page 2, Line –16, -17: Rewrite as "Studying Rene Descartes' 'Geometry' independently led Newton down a very mathematically-concentrated path."
  - Page 2, Line –15: Replace "due to the fact that" with "since"
  - Page 2, Line –6: Replace "During the time of ..." with "Newton's greatest discoveries were during The Plague"

- Page 2, Line –5: Replace “Although there were ... best mathematicians” with “Although questions remained unanswered even by the best mathematicians”
- Page 3, Line +1, +2: Rewrite as “...Fermat overcame this issue but sacrificed beauty, elegance, and simplicity.”
- Page 3, Line +3: Rewrite as “In the spring of 1665, Newton discovered calculus.”
- Page 3, Line +8: Remove “for” and “between”
- Page 3, Line –7: Replace “was able to publish” with “published”
- Page 3, Line –5: Remove “that”
- Page 3, Line –4: Remove both instances of “that”
- Page 4, Line +8: Remove “we live in”
- Page 4, Line +9: Remove “better” and “had”
- Page 4, Line +11: Replace “have been” with “were”
- Page 4, Line +12: Remove “to be”
- Page 4, Line –13: Replace “which” with “that”
- Page 4, Line –6: Replace “on the basis of” with “based on”
- Page 4, Line –2: Remove “which could be used”
- Page 5, Line +1: Remove “is something that”
- Page 5, Line +14: Remove “is now”
- Page 5, Line +16: Remove “up
- Page 5, Line –13: Replace “was not able to with “did not
- Page 5, Line –11: Replace “up to” with “until”
- Page 5, Line –10: Remove “had”
- Page 5, Line –6: Remove “also”
- Page 5, Line –3: Replace “it was believed that” with “they believed”
- Page 6, Line +9: Remove “time”
- Page 6, Line +11: Remove “also”
- Page 6, Line –5: Remove “then” and replace “into” with “to”
- Page 6, Line –5: Replace “the Aristotelian tradition ... years” with “the thousand-year old Aristotelian tradition”
- Page 7, Line +14: Remove “was able to” and replace “formulate” with “formulated”
- Page 7, Line –6: Remove “had”
- Page 7, Line –3: Remove “great” since it’s superfluous
- Page 8, Line +1: replace “proved to generate” with “generated”
- Page 8, Line +3: Replace “there was no coherent explanation as to why objects did not simply fly off the face of the Earth.” with “objects should simply fly off the face of the Earth.”
- Page 8, Line +6: remove the word “did”, replace “move” with “moved”

- Page 8, Line +7: Replace “was” with “were”
- Page 8, Line +9: Replace “bodies which” with “bodies that”
- Page 8, Line +14: Replace “challenge .. the response” with “challenge to which Newton found the response”
- Page 8, Line +15: Remove “be allowed to”
- Page 8, Line +19: Replace “saw” with “placed”
- Page 10, Line +7,+8: “It is of note that Newton refers to rectangles as parallelograms.” The sentence begins with too many words.
- Page 12, Line 1: This sentence is purely an opinion, and adds no value.
- Page 12,Line +11: “at around the exact time” is redundant.
- Page 12, Line +13: Remove “as well”
- Page 12, Line +17: Replace “had studied” with “studying”
- Page 12, Line –8: Replace “Contrary” with “Unlike”.
- Page 12, Line –7: Remove “himself”
- Page 12, Line –1: Replace “which” with “that”
- Page 13, Line +2, +3: Remove “very” and “very” (both instances)
- Page 13, Line +4: Remove “also” and “to” and “to” (both instances)
- Page 13, Line +6: Remove “very”
- Page 13, Line +7: Remove “very”
- Page 13, Line –12: Remove “or not”
- Page 13, Line –6: Remove “form of the”
- Page 13, Line –5: Replace “truth would be revealed two hundred years later that” with “truth revealed two hundred years later showed”
- Page 14: Remove the final paragraph. It doesn’t flow with this section and adds no value
- Page 15, Line 2: remove “had”
- Page 15, Line +8: Remove “and foremost”
- Page 15, Line +13: Replace “have become” with “were”
- Page 15, Line +13: Replace “, and are” with “and”
- Page 15, Line –8: Replace “the times of Ancient Greece, it would have been considered” with “Ancient Greece, this was”
- Page 16, Line +7: This first sentence adds no value.
- Page 16, Line –6: Replace “A notable concept” with “The concept of is the”
- Page 16, Line –5: Remove “, which”

- Please be careful with punctuation use
  - Page 2, Line +18: Insert a comma after “Newton”
  - Page 2, Line -17: Insert a comma after “religious man”

  - Page 6, Line +2: Insert commas after “Ptolemy” and “Greek era”
  - Page 9, Line -9: The comma before “In this case” should be a period.
  - Page 10, Line +2: Add a comma after “today”
  - Page 12, Line +6: Add a comma after “Cambridge University”
  - Page 12, Line +9, +10: “These fields of study... on the use of calculus to understand.” Remove the semicolon.
  - Page 12, Line –3: replace “mathematics, calculus” with “mathematics: calculus.”
  - Page 13, Line +5: replace “Leibniz” with “Leibnizs”
  - Page 13, Line +16: replace “differential calculus,” with “differential calculus:”
  - Page 15, Line +1: remove the period
  - Page 15, Line –3: Insert a comma after “bonds”
  - Page 16, Line –9: Insert a comma after “Thus”
  - Page 16, Line –5: Remove the comma after ““understood”

- Italicize the titles of books and other works
  - Page 2, Line +15
  - Page 2, Line +24
  - Page 2, Line +25
  - Page 2, Line –19
  - Page 3, Line –7
  - Page 4, Line –7,–10
  - Page 8, Line –5,–6
  - Page 13, Line –6

- Don’t use first first person point of view
  - Page 12, Line +9: Replace “as we know today;” with “as known today,”
  - Page 12, Line –1: Replace “what we now know” with “now known”
  - Page 15, Line +3
  - Page 15, Line +2

- Typographical Errors
  - Page 1, Line –6: Replace “reasons with “reason”
  - Page 2: Line +11: Replace “Bachelor with “Bachelors
  - Page 2, Line –20: Replace “astrology with “astronomy
  - Page 4, Line +3: Replace “to with “do
  - Page 5, Line +7: Replace “academics with “academic
  - Page 8, Line +20: Replace “phenomenon with “phenomena to fix the cardinality

- Page 12, Line –1: Replace “a genius with “an ingenious since it should be an adjective not noun.
- Page 13, Line +14: Replace “war on calculus with “calculus war. There was not a war against calculus, only a controversy on the discoverer of calculus.
- Page 15, Line +10: Replace “Astrology with “astronomy
- Page 16, Line –9: Replace “behavior with “behaviour to use Canadian spelling instead of American spelling.

- Unnecessary capitalization
  - Page 15, Line +6: “Physics, Astrology and Chemistry”
  - Page 15, Line –8: “Heavens”
  - Page 15, Line –9: “Solar System”
  - Page 15-16: Any reference to an academic subject, such as “Biology”, “Zoology”, “Physics”, “Life Science.”
  - Page 16, Line +10: “Series”

- Use formal language instead of colloquial language
  - Page 2, Line +4: “Learn the ropes” is colloquial

- Additional suggested changes
  - Page 2, Line +16: Replace “his bachelors” with “his bachelors degree”
  - Page 2, Line –13: Replace “begins” with “started”
  - Page 2, Line –14: The sentence “These were questions ...” is missing punctuation or a clause. It does not make sense in its current form.
  - Page 3, Line +1: Replace the question mark with a period.
  - Page 3, Line +4: Replace “fascination to” with “fascination or”
  - Page 3, Line –6: Write out the number 5 as “five”.
  - Page 4, 2.1 Title: Replace “1600’s” with “1600s”
  - Page 4, Line +7, 11: Replace “prior to” with before
  - Page 4, Line –6: Replace “may” with “might”
  - Page 5, Line +2: Replace “allegedly having ... written” with “allegedly writing ....”
  - Page 5, Line +17: Replace “who” with “that”
  - Page 6, Line +12: Replace “created basic” with “created the basic”
  - Page 6, Line –11: Write out twelfth instead of putting 12^{th}
  - Page 7, Line +5: Replace “have” with “had”. The verbs need consistent tense.
  - Page 8, Line +4: Replace “in relatively low speeds” with “at relatively low speeds.”
  - Page 8, Line +15: The past perfect tense should not be used here.
  - Page 8, Line +16: Replace “No longer was the heavens” with “No longer were the heavens.”

- Page 8, Line –2,–3,–4,–5: The citation should appear in the same sentence.
- Page 8, Line –2: "but instead followed strict laws" does not follow from the sentence structure established earlier.
- Page 9, Line 7: Replace "integrated calculus into his book" with "included calculus into his book." The pun is not appropriate.
- Page 13, Line –17: replace "title" with "entitled."
- Page 14, Line +3: replace "integral of the derivative" with "integral and the derivative"
- Page 14, Line +2: replace "had changed how we understood" to "has changed how we understand."
- Page 15, Line +11: Replace "Newton had established" with "Newton established." There is no need to use the past perfect tense.
- Page 16, Line +15: replace "of change in interest rate" with "of a change in interest rate."
- Page 16, Line +16: replace "based off" with "derived."
- Page 16, Line –2: Replace "which" with "that"

Mathematics

The mathematics is not targeted at an appropriate audience. The mathematics presented is simply restatements of theorems and notation that is content from basic mathematics classes (STAT 230, MATH137, ACTSC 231).

- Omission: Pages 6, 7, Diagrams: Include some interpretation of the diagrams, otherwise they are confusing for the reader and do not add value to the report
- Typographical error: Page 9, Line +17, 3^{rd} term on the right hand side is missing x^2
- Typographical error: Page 9, Line +17, n should be k
- Omission: Page 9; Binomial Theorem - No proof is given, and the theorems are simply stated. This theorem in particular is well known to the target audience (3^{rd} year UW Math students) and as such, the lack of proof or additional content makes this section irrelevant. Finally, no context is given for the bound on $x : -1 < x < 1$ given in Newton's Binomial Theorem.
- Omission: Page 10, Line –1: following x^{n-1} insert "at the point x"
- Error: Page 14, Line +6: Indefinite integral is missing the constant of integration
- Omission: Page 14, Line +6; No discussion is given on Leibniz & Newton's notation for integration (even if it is the same, this would be a relevant point) Phrasing: Page 14, Line –5; The presentation here makes it difficult to clearly see what is Newton's notation, and not Leibniz's
- Error: Page 16, Line +14; report states that a Taylor Series determines the interest rate sensitivity of a bond, however it would be less misleading and more accurate to state that a Taylor Series approximates this sensitivity.
- Omission: Page 16, Line +16; i is not defined. It should be defined as the nominal interest rate

Plagiarism

There is is some evidence of plagiarism.

- Uncited Extract: Page 1: extract from list of 48 sins is directly quoted, but not cited. Source: http://www.huffingtonpost.com/2012/01/06/isaac-newton-list_n_1190714.html
- Uncited Extract: Page 4 Line +2,+3,+4,+5": These are direct quotes which are not cited from *Magnificent Principia: Exploring Isaac Newton's Masterpiece* by Colin Pask. Excerpt here: https://books.google.ca/books?id=lRhnAAAAQBAJ&pg=PT29&lpg=PT29&dq=The+great+questions+driving+Newton%E2%80%99s+Principia+are:&source=bl&ots=DPIaUGTDaQ&sig=xLhunYvlgN3tKALUQBFlY hl=en&sa=X&redir_esc=y#v=onepage&q=The%20great%20questions%20driving%20Newton%E2%80%99s%20Principia%20are%3A&f=false
- Uncited Extract: Page 5 Line +3: "let no one ignorant of geometry enter here" is a direct quote that is uncited. Source: http://plato-dialogues.org/faq/faq009.htm
- Uncited Extract: Page 5, Line 20: "a prerequisite for knowing anything is understanding why it is". Source: *Physics* by Aristotle. http://philosophyideas.com/search/idea_detail.asp?find=idea&visit=2&ThemeNumber=237&area=Society&area_no=25&ID=8331&return=yes&theme_alpha=yes&gistsfor=idea&source=theme
- Uncited Diagram: Page 6, diagram: Diagram is copied from https://mhs-integrated-curriculum.wikispaces.com/Beginning+-+ancient+civilizations but is uncited
- Uncited Extract: Page 6, Line +18,+19.+20,+21: "matters where reason and faith collided, faith must win" is a direct quote followed by an essential paraphrase of an uncited quotation. Source: Magnificent Principia: Exploring Isaac Newton's Masterpiece
- Uncited Extract: Page 7, Line +15,+16,+17,+18,+19 and diagram: Copied directly from https://en.wikipedia.org/wiki/Kepler%27s_laws_of_planetary_motion with no citation
- Uncited Extract: Page 8, Line –6: "discovery of causal relationships by systematic experimentation" is copied from http://www.goodreads.com/quotes/1128357-development-of-western-science-is-based-on-two-great-achievementsbut is uncited
- Uncited Extract: Page 8, Line –13: Galileo's quote needs to be in quotations and cited.
- Uncited Extract: Page 10, Lemma II: No source is given for this lemma and diagram

References

The references are correct and useful.

- Omission: Reference[15] is missing the URL: http://www.famousscientists.org/gottfried-leibniz/