

SUPPLEMENTARY MATERIAL

First Year Introductory Chemistry at the University of Western Australia: Reflections and Perceptions

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An Investigation Into Student Motivations and Reasoning Behind Enrolling to Study CHEM 1003.

— Consent Form—

As a subject, you are free to withdraw your consent to participate at any time without prejudice. The researchers will answer any questions you may have in regard to the study at any time.

I _____ (participants name) acknowledge that I have read the above statement and information sheet, which explains the nature; purpose and risks of the investigation and that any questions I have asked have been answered to my satisfaction. I agree to participate in this study realising that I may withdraw at any time without prejudice.

I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required to so by law.

I agree that research data gathered for the study may be published provided my name or other identifying information is not used.

Participant

Date

The committee for Human Rights at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Committee for Human Registrar's Office, University of Western Australia, Crawley, WA 6009 (telephone number 6488 3703). All study participants will be provided with a copy of the information sheet and consent form for their personal records.

Student Survey 1 – CHEM 1003 Chemistry Education study

1. **Student Number**

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2. **Date of birth**

Day		Month		Year	
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3. **Gender** (please circle)

Male / Female

4. **Please indicate which High School you completed your secondary schooling at and what year level you successfully completed?**

Name of School	Bunbury Catholic College (Example)	Year level completed	Year 12 (Example)
Name of School		Year level completed	

Please indicate, by circling, if this school is:

a) Metro WA

Rural WA

Interstate school

School in a country outside of Australia

Home-school

Other _____

b) Public School

Private School

Other _____

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5. Did you choose Introductory Chemistry CHEM 1003 as:

(please indicate the **single** most appropriate statement by placing a tick beside it in the left hand column)

<input type="checkbox"/>	A necessary unit in your chosen major
<input type="checkbox"/>	A Broadening unit
<input type="checkbox"/>	An Elective or complementary unit
<input type="checkbox"/>	Other (please use the space below to elaborate further)

6. What lead to you becoming enrolled in CHEM 1003?

(please indicate the **single** most appropriate statement by placing a tick beside it in the left hand column)

<input type="checkbox"/>	I completed year 12 in 2012 and did not study Chemistry 3A/3B
<input type="checkbox"/>	I completed year 12 in 2012 and did study Chemistry 3A/3B, however I did not pass the unit
<input type="checkbox"/>	I completed the Special Tertiary Admissions Test (STAT) in 2012 to gain admission to UWA
<input type="checkbox"/>	I used credits from previous study (TAFE or another tertiary study organization other than UWA) to obtain entrance to CHEM 1003
<input type="checkbox"/>	I have studied previously at the University of Western Australia
<input type="checkbox"/>	Other (please use the space below to elaborate further)

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7. With reference to the statements below please indicate how applicable that statement is to you. (Please indicate by circling a number from 1 to 5 for every statement)

Statement	Not Applicable	Only just Applicable	Slightly Applicable	Applicable	Very Applicable
I chose CHEM 1003 as an elective unit and I think I will enjoy it	1	2	3	4	5
I chose CHEM 1003 as an elective unit but I am not really looking forward to it	1	2	3	4	5
CHEM 1003 is a pre requisite for my course and I am looking forward to it	1	2	3	4	5
CHEM 1003 is a pre requisite for my course and I am NOT looking forward to it	1	2	3	4	5
I feel what I learn in CHEM 1003 will benefit my career/future study	1	2	3	4	5
I feel what I learn in CHEM 1003 will be beneficial to my life outside of work/study	1	2	3	4	5

8. Did you enjoy chemistry when you were at school?

(Please select the **single** most appropriate answer to this question below by placing a tick under option A, B or C)

A.	I enjoyed chemistry while at school		B.	I neither enjoyed or disliked chemistry while at school		C.	I disliked chemistry while at school
<input type="checkbox"/>			<input type="checkbox"/>			<input type="checkbox"/>	

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9. With reference to the statements below please indicate your level of agreement by circling a number from 1 to 5 for every statement:

Statement	Strongly Disagree	Disagree	Neutral/Not Applicable	Agree	Strongly Agree
I enjoyed chemistry at school	1	2	3	4	5
I enjoyed the laboratory sessions and "hands on" activities in chemistry classes	1	2	3	4	5
I had a great teacher for chemistry while at school	1	2	3	4	5
I enjoyed how applicable chemistry is to 'real life' problems	1	2	3	4	5
I enjoyed the challenge of learning difficult chemistry concepts	1	2	3	4	5
The facilities in the school were great for chemistry	1	2	3	4	5
I enjoyed the theory taught to me during chemistry classes at school	1	2	3	4	5

10. What is/are your motivation(s) for studying the unit CHEM 1003?

(Place a tick next to **one or multiple** statements that you feel apply to you)

<input type="checkbox"/>	CHEM 1003 is not a pre requisite for my course (i.e. you elected to study the unit) and I am interested in it
<input type="checkbox"/>	CHEM 1003 is not a pre requisite for my course (i.e. you elected to study the unit) and I am NOT that interested in it
<input type="checkbox"/>	CHEM 1003 is a necessary requirement of my course but I am NOT that interested in it
<input type="checkbox"/>	CHEM 1003 is a necessary requirement of my course and I am interested in it
<input type="checkbox"/>	I feel that the content I will learn in CHEM 1003 will be a useful foundation for further study and my career
<input type="checkbox"/>	I feel that the content I will learn in CHEM 1003 will be a useful foundation for life outside of study
<input type="checkbox"/>	If you feel you have different motives for studying this unit please tick this option and elaborate below.

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11. How do you feel about the compulsory laboratory sessions required to be completed for this unit?

(Place a tick next to **all** statements you feel apply to you)

	I am excited about the laboratory sessions
	I am worried about the laboratory sessions
	I am feeling overwhelmed by the laboratory sessions
	I am feeling confident with regards to the laboratory sessions
	I feel the laboratory sessions will be easy
	I don't care at all about the laboratory sessions
	Other (please elaborate further in the space provided below)

12. How do you anticipate you will find the CHEM 1003 unit?

(Place a tick next to **all** statements you feel apply to you)

	I feel CHEM 1003 will be challenging
	I feel CHEM 1003 will be too easy
	I feel CHEM 1003 will be a time consuming unit
	I feel CHEM 1003 will be boring
	I am excited about CHEM 1003
	I feel CHEM 1003 will be an enjoyable unit
	Other (please elaborate further in the space provided below)

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13. As of today, do you intend to enroll in another chemistry unit after CHEM 1003? Please circle the response below which you feel is most appropriate.

Yes

No

Maybe/Unsure

14. Please make any additional comments (in the space provided below) you feel are worth sharing with regards to your motivations for being here and undertaking the unit CHEM 1003?

14. Please place a tick in this box if you are willing to make yourself available for short interviews (to be conducted only during laboratory class time) with regards to this research study.

**An Investigation Into Student Motivations and Reasoning Behind Enrolling in CHEM
1003**

As a subject, you are free to withdraw your consent to participate at any time without prejudice. The researchers will answer any questions you may have in regard to the study at any time.

I _____ (participant's name) acknowledge that I have read the above statement and information sheet which explains the nature, purpose and risks of the investigation and that any questions I have asked have been answered to my satisfaction. I agree to participate in this study, understanding that I may withdraw at any time without prejudice.

I understand that all information provided is treated as strictly confidential and will not be released by the investigator unless required to so by law.

I agree that data gathered as a part of this study may be published provided my name or other identifying information is not used.

Participant

Date

The Committee for Human Rights at the University of Western Australia requires that all participants are informed that, if they have any complaint regarding the manner, in which a research project is conducted, it may be given to the researcher or, alternatively to the Secretary, Committee for Human Registrar's Office, University of Western Australia, Crawley, WA 6009 (telephone number 6488 3703). All study participants will be provided with a copy of the information sheet and consent form for their personal records.

Student Survey 3 – CHEM 1003 Chemistry Education study

1. Student Number

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2. Now that you have almost completed the unit CHEM 1003, think about the below statements and please indicate your level of agreement by circling a number from 1 to 5 for every statement:

Statement	Strongly Disagree	Disagree	Neutral/Not Applicable	Agree	Strongly Agree
I have enjoyed CHEM 1003	1	2	3	4	5
I enjoyed the laboratory sessions in CHEM 1003	1	2	3	4	5
I feel the teaching in CHEM 1003 has been very good	1	2	3	4	5
CHEM 1003 has demonstrated to me how applicable chemistry is to 'real life' problems	1	2	3	4	5
I've enjoyed the challenge of learning difficult chemistry concepts in CHEM 1003	1	2	3	4	5
The UWA facilities used for CHEM 1003 are good	1	2	3	4	5
I've enjoyed the theory taught to me in CHEM 1003	1	2	3	4	5
I feel CHEM 1003 was a relatively easy unit in comparison to my other units	1	2	3	4	5

3. With reference to the statements below please indicate how applicable that statement is to your experience in CHEM 1003. (Please indicate by circling a number from 1 to 5 for every statement)

Statement	Not Applicable	Only just Applicable	Moderately Applicable	Applicable	Very Applicable
I was able to choose to study CHEM 1003 and I really enjoy it	1	2	3	4	5
CHEM 1003 was a compulsory unit for me but I still really enjoy it	1	2	3	4	5
I feel what I have learnt in CHEM 1003 will benefit my career/study	1	2	3	4	5
I see and/or apply what I have learnt in CHEM 1003 to my life outside my study	1	2	3	4	5

4. Why are you in CHEM 1003 and how do you currently feel about the unit?

(Place a tick next to **one statement only** below that you feel most applies to you)

	CHEM 1003 is not a pre requisite for my course (i.e. I <i>elected</i> to study the unit) and I am interested in it
	CHEM 1003 is not a pre requisite for my course (i.e. I <i>elected</i> to study the unit) and I am NOT that interested in it
	CHEM 1003 is a necessary requirement of my course and I am interested in it
	CHEM 1003 is a necessary requirement of my course but I am NOT that interested in it

5. Now that we have almost completed the unit CHEM 1003 how do you feel about the unit?

(Place a tick next to **all** statements you feel apply to you)

	I feel CHEM 1003 was too challenging
	I feel CHEM 1003 was too easy
	I feel CHEM 1003 was a time consuming unit
	I feel CHEM 1003 was boring
	I am excited about CHEM 1003
	I feel CHEM 1003 was an enjoyable unit

6. In your opinion is CHEM 1003 useful? (Please circle Agree or Disagree for every statement below depending on which response best reflects your feelings towards the statement).

Agree	Disagree	I feel that the content I have learnt in CHEM 1003 will be a useful foundation for further study and my career
Agree	Disagree	I feel that the content I have learnt in CHEM 1003 will be a useful foundation for life in general i.e. away from study/career
Agree	Disagree	I feel that CHEM 1003 has very little relevance as a foundation for my further study/career or my life outside of work/study.

7. As of today, if you had no restrictions on future unit choices, would you choose to enroll in another chemistry unit after CHEM 1003? Please circle the response below which you feel is most appropriate.

YES	NO	Maybe/Unsure
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8. Now that you have completed the majority of the compulsory laboratory sessions for this unit, how do you feel about this component of the unit CHEM 1003? (Place a tick next to all statements you feel apply to you)

	I was excited about the laboratory sessions
	I was worried about the laboratory sessions
	I felt overwhelmed by the laboratory sessions
	I felt confident with regards to the laboratory sessions
	I felt the laboratory sessions were easy
	I didn't really care at all about the laboratory sessions
Please elaborate in the space provided below with any comments you may have with respect to the laboratory sessions:	

9. Please indicate on the scale below which chemistry related resources and news sources you used by circling the number that best indicates on the scale your frequency of using that resource.

Statement	Never used	Once or twice only	Sometimes used	Regularly used	Used all the time
Chemistry text book or other hard copy reference books	1	2	3	4	5
Visited chemistry related websites for reference material or used OWL.	1	2	3	4	5
Read articles in scientific journals	1	2	3	4	5
Attended the voluntary Peer Assisted Learning (PAL) sessions	1	2	3	4	5
Sourced private tutoring for chemistry study	1	2	3	4	5
Watched video tutorials or interactive online resources (e.g. Khan Academy)	1	2	3	4	5
Read chemistry related stories on websites online blogs, Facebook pages, twitter	1	2	3	4	5
Other source? (Please specify in this box)	1	2	3	4	5

10. If you had the chance to change an aspect of the unit CHEM 1003 which you feel would make you more motivated to study the unit, what would it be?

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Interview Protocol Round 1

Focus group interview

Time and group identification:

Student Names and Numbers present:

Questions

1. In 1 min provide a quick synopsis of your background, where you are from, school, previous experience with chemistry as an introduction. (Probably best if Bob and myself could also have a go at this in the beginning if group is struggling).
2. What is your perception of chemistry? And what did you think about chemistry coming into this unit?
3. A memorable moment from chemistry (school or home or holiday?)
4. Why are you enrolled in CHEM 1003, what do you feel motivates you to study this unit?
5. Why did you come today to the interview session in your own time, please be honest?
6. Have you been enjoying CHEM 1003 so far?
7. Why/why not? Any noteworthy or interesting topics you have covered which memorable of significant interest?
8. If you could change one thing to date with regards to CHEM 1003 what would it be?
9. Do you attend majority of the lectures
10. In relation to other units how much time/energy do you devote to CHEM 1003? Why/Why not?
11. How much time do you spend outside of lectures on this unit?
12. Do you see relevance in this unit outside of career and your chosen study path?
13. What are your perception of chemistry since beginning CHEM 1003? Have they changed do you think?
14. Do you feel the labs are an important part of a chemistry unit?
15. Have you found the pre labs helpful in the lab exercises?

Interview Protocol Round 2

Name:

Student Number:

1. Why are you enrolled in CHEM 1003, what do you feel motivates you to study this unit?
2. Have you been enjoying CHEM 1003, why/why not? Can you provide some examples/anecdotes to support these feelings from the unit?
3. If you could change something in the unit what would it be?
4. What was your perception of chemistry starting this unit? Do you feel your perception has changed with regards to chemistry since being involved in this unit?