

STAC Class Roll Formatter

MBA 614 Final Report Write-up

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Executive Summary

I am an instructor for a variety of STAC courses at BYU. For each class I have to download a class roll from AIM. This class roll is essentially a blank excel template void of dates, totals, or any other helpful information (see Appendix 1).

For each class I have to edit and adjust this template to track the data I use for the class and present it in a usable and readable way. I add class dates, columns to track tardies and absences, formulas to evaluate attendance, conditional formatting for readability, and more. After I am finished the result is extremely helpful (see Appendix 2).

I created a system that will automatically adjust any class roll and add most of the useful features that I normally add manually. I also added additional features like factoring in make-up classes, adding an action button to remove students that withdrew from the class, and instructions that would allow any instructor to use this system. Outside of the original project scope I also added a roll importing and saving feature that makes the system easy for any instructor with a very basic knowledge of Excel to use.

Implementation documentation

This system is intended for use by any Student Wellness (STAC) instructor at BYU. Originally the system was designed for my own personal use as a STAC instructor but after talking with my supervisor about it, she asked that I make it available to all instructors. In the following paragraphs I will review the features and intended use of the system and the benefits it provides to every STAC instructor.

Background

Every STAC class at BYU is graded on a Pass/Fail basis. Department policy dictates that every student is required to attend class and pass a written exam in order to receive a passing grade. If the student fails to pass the written exam, or is not in attendance for more than 80% of the classes during the semester, they fail the course. This translates to a student not being able to miss more than five classes in a semester. Department policy also dictates that for every three times a student is tardy, those tardies will equal one absence. Given the policies above, it is very important to keep accurate attendance records for all students and warn them if they are coming close to failing the class.

Currently, a large majority of instructors track attendance using printed attendance rolls which makes it difficult to track absences and tardies for the students. Rolls are often lost or destroyed throughout the course of the semester, which presents obvious challenges. Additionally, if a student wants to inquire about their attendance status in the class each day must be counted and summed manually which both time consuming and prone to error. The system I developed will remove these issues and more for all STAC instructors and keep students updated on their current attendance status much more effectively.

System Features

This system transforms a basic attendance spreadsheet into something that is both easy to read and easy to use. The primary features, their function and purpose, and the benefit to the instructor and students will be discussed below starting with the overall transformation and then a detailed review of each of the parts.

Overall Transformation

When an instructor downloads a class roll from BYU AIM they receive a blank spreadsheet with basic student information and a lot of blank cells to record assignment scores. Since attendance is essentially the only assignment in STAC classes this roll needs to be modified to appropriately track attendance. A review of the two screenshots found on the next page and in the appendix of this report will show these modifications in overview. (*See Appendix 1 & 2*) In short, it saves the instructor time and frustration by giving a skeleton some

muscle to work with by adding columns and data while removing others. That is the foundation that allows the other features to function properly.

Primary Features

The primary features of the system are: absence, tardy, and make-up trackers; a withdraw student option; readability improvements; basic instructions; and an import/export feature that was out of the original project scope.

Absence, Tardy, and Make up Trackers

- Since Attendance is one of the central focuses of a STAC class, tracking it is an obvious primary feature. The following screenshot will so the summary variables for all the attendance options as they are intended to be used with sample data placed in for dates of a semester.

Tardies	Absences	Make-ups Completed	5-Jan	7-Jan	12-Jan	14-Jan	21-Jan	26-Jan	28-Jan	2-Feb	4-Feb	9-Feb	11-Feb	17-Feb	18-Feb	23-
0	5	0				x	x	x	x	x	x	x			x	
1	1	0	x	x	x	x	x	x	x	x	T	x	x	x	x	
0	4	0				x	x	x	x	x	x	x	x	x	x	
0	0	0	x	x	x	x	x	x	x	x	x	x	x	x	x	
0	1	0	x	x	x	x	x		x	x	x	x	x	x	x	
1	1	0	x	x	x	x	x	x	x	x		x	x	x	T	
0	0	0	x	x	x	x	x	x	x	x	x	x	x	x	x	
0	2	0			x	x	x	x	x	x	x	x	x	x	x	
0	1	0	x	x	x	x	x	x	x	x	x	x	x	x	x	
0	2	0	x	x	x	x	x	x	x		x	x	x	x		
0	5	0		x	x	x		x	x	x	x		x	x		
0	2	0	x	x	x	x		x	x	x	x	x	x	x	x	
0	1	0	x	x	x	x	x	x		x	x	x	x	x	x	
0	2	0		x	x	x		x	x	x	x	x		x	x	
1	1	0	x	x	x	x	x	x	x	x	x	x		x	x	
3	4	0	x	x	T			x	x	x	x	x	x		x	
0	2	0	x	x	x	x	x	x	x	x	x	x	x	x	x	
2	3	0	x	x	x	x	x	x		x	L		x	x	T	
0	2	0	x	x	x	x	x	x		x	x	x		x	x	

- As you can see above there are numbers populating the columns of Tardies and Absences. These numbers represent the number of times a student has been tardy or absent thus far in the semester. In harmony with department policy, if a student is tardy three times they receive an absence and this absence is automatically factored into the students total absences. (This will occur every time a student breaks the three-tardy threshold. I.e. at 3, 6, 9, and so on.)
- Finally, if a student is able to make up a class the instructor must deduct and absence from that students total. Entering a number into the make-up column will automatically deduct that number of absences from the students total.

Withdraw Student Option

- After the university add/drop deadline it is fairly common for a few students to withdraw from the class for various reasons. When this happens instructors are asked to keep the students attendance records

but by doing so they interfere with the remaining classes. By selecting a student and clicking the withdraw button their attendance record is moved below the enrolled student section to another section. This keeps the record intact without interfering with future classes or other features of the system.

Course: STAC 110

Credit Hours: 0.50

Pass/Fail Grade Rule: P E I

Spring 2015 (28 Apr 2015 - 15 Jun 2015)

Days

MTWTh

Section: 001

Enrolled: 24

Curriculum ID: 12226

Req Size: 24

Title Code: 000

Section Type: DAY

Instructor

Johnson, John

Drop Student

Send Attendance Emails

Students Currently Enrolled in the Class

	Name	Email	Standing	Hrs	Emphasis	Tardie
1	Thomson Alexandra	riojasm66@yahoo.com	Senior	0.5	Electrical Engineering	0
2	Simpson Ryan	hdclive@live.com	Senior	0.5	Communication Disorders	1
3	Baker Claire	terauau@gmail.com	Senior	0.5	Pre-Management Core	0

Students that Withdrew from the Class

	Name	Email	Standing	Hrs	Emphasis	Tardie
3	Baker Claire	terauau@gmail.com	Senior	0.5	Pre-Management Core	0

Readability Improvements

- In order to increase readability, conditional formatting is used in the system to highlight daily options like absences and tardies as well as the summation columns to alert the instructor to students that are approaching the absence and tardy limit.

Students Currently Enrolled in the Class													
	Name	Standing	Hrs	Emphasis	Tardies	Absences	Make-ups Completed	5-Jan	7-Jan	12-Jan	14-Jan		
1	Thomson Alexandra	Senior	0.5	Electrical Engineering	0	5	1					x	
2	Simpson Ryan	Senior	0.5	Communication Disorders	3	5	0	x	x	x	x		
5	Rees Melanie	Senior	0.5	English	1	1	0	x	x	x	x		
6	Kelly Jessica	Sophomore	0.5	Psychology	0	1	0	x	x	x	x		
7	Hardacre Sophie	Senior	0.5	Mechanical Engineering	1	1	0	x	x	x	x		
9	Harris Isaac	Sophomore	0.5	Communication Disorders	1	0	0	x	x	x	x		
10	Avery Kylie	Senior	0.5	Exercise Science	4	3	0					x	x
11	Edmunds Fiona	Senior	0.5	Pre-Management Core	0	2	0	x	x	x	x		
14	Jones Jasmine	Senior	0.5	Communication Disorders	0	4	0	x	x	x	x		
15	Clark Sean	Senior	0.5	Communication Disorders	0	5	1			x	x	x	
16	Hughes Christian	Senior	0.5	Art History & Curatorial	0	3	0	x	x	x	x		
18	Blake Wanda	Senior	0.5	PD Biology	0	3	0	x	x	x	x		
19	Carr Alexander	Senior	0.5	History	0	3	0			x	x	x	
20	Graham Joseph	Masters	0.5	Continuing Education	1	3	0	x	x	x	x		
21	Parr Zoe	Senior	0.5	Advertising	4	5	1	x	x				
22	Black Olivia	Senior	0.5	Exercise & Wellness	3	3	0	x	x	x	x		
23	Rampling David	Masters	0.5	Business Administration	3	5	1	x	x	x	x		
24	Bell Keith	Senior	0.5	Nursing	0	3	0	x	x	x	x		

- In the tardy and absence summation column, cells are highlighted in a variety of colors depending on their status. If a student has four or more absences their total cell will change colors depending on the cell value. If a student has three or more tardies the same thing will happen to the associated cell. Additionally, absences and tardies on each day are highlighted for easy readability.

Basic Instructions

- Since this system will be used by a variety of instructors I included a description of the input variables for each day, additional clarification instructions requested by my supervisor, and implementation instructions included in the first worksheet to guide the instructor on the use of the system.

Attendance Key	
x	Mark X if the student is present
T	Mark T if the student is tardy
L	Mark L if the student leaves early
	Clear the cell if the student is absent

Class Time Example for 8:00 Class	
8:05	Roll Call - If a student arrives after this time they are tardy
8:15	Absence Deadline - If a student arrives after this time they are absent
8:40	Absence Cut off - If a student leaves before this time they are absent
8:45	End of Class - If a student leaves before this time they are marked for leaving early

STAC Roll Formatter

Step 1
Enable Macros for this workbook

Step 2

AIM

REGISTRATION

AIM

Student

Faculty

College/Department

Student

Address

Phone

Class Schedule

Transfer and Substitutions

Grades

Academic

Registration

Student Academic Record

University Class Schedule

University Catalog

Course Catalog

Instructor Class Schedule

My Class Schedule

No Final Exam Schedule

Registrar for Classes

Exam Schedule by Department

Exam Schedule by Day

Section	Area	Cat	Sec	L	Q	R	W	Th	F	Sa	Su	Sec Type	Class Period	Days	Room	Reg	Reg Date	End Date	Title	Size	Enr	Cap	Rolls	Check	Waitlist	Class Roll	Grades Roll	Grade Submission Method
STAC	104	001										0.5	8:00a - 8:50a	MON	177	RB			Dance Aerobics	50	35	60				View	View	AIM
STAC	110	003										0.5	10:00a - 10:50a	MON	137A	RB			Indoor Cycling	24	19	0				View	View	AIM
STAC	110	005										0.5	11:00a - 11:50a	MON	137A	RB			Indoor Cycling	24	23	0				View	View	AIM
STAC	110	006										0.5	12:00p - 12:50p	TUE	137A	RB			Indoor Cycling	24	21	0				View	View	AIM
STAC	110	008										0.5	1:00p - 1:50p	TUE	137A	RB			Indoor Cycling	24	23	0				View	View	AIM

Indoor Cycling

Course: STAC 110 Section: 005 Curriculum ID: 12226 Title Code: 000
Credit Hours: 0.50 Enrolled: 23 Req. Size: 24 Section Type: Day
Grade Rule: Pass/Fail Grade Rule: P & F
Honors: No Lab/Quiz: No
Winter 2015 (05 Jan 2015 - 14 Apr 2015)
Days: Time Location: MW 11:00 - 11:50 137A RB 0 Instructor: Wesson, Brent Edward

[Clear](#) [Select All](#) [Email Selected](#) [Email All](#) [Email Class with more than 80 Students](#)

[Picture Roll](#) [SpreadSheet](#) [Export](#) [Assignment Class Roll \(Printable\)](#) [Waitlist](#)

[Email](#) [Phone](#) [Address](#)

Step 3
1. Click on the Button to the left and select the file that was downloaded from clicking on the SpreadSheet link.
2. Review the newly created "Class Roll" tab to ensure the data is correct. If it is incorrect delete that sheet and repeat this step.

Step 4
1. Click on the Button to the left and select the file that was downloaded from clicking on the Export link.
2. Review the "Class Roll" tab to ensure the emails inserted appropriately. If it is incorrect delete that sheet and move back to step 3.

Import/Export

- This feature allows any instructor to easily use this system and save their formatted class rolls. Originally, I was just going to store the macros in this system in my personal workbook for use at any time on my computer but my supervisor requested that I make it accessible for all instructors. This feature makes that possible.

Step 3

Import Class Roll

1. Click on the Button to the left and select the file that was downloaded from clicking on the SpreadSheet link.
2. Review the newly created "Class Roll" tab to ensure the data is correct. If it is incorrect delete that sheet and repeat this step.

Step 4

Import Email Addresses

1. Click on the Button to the left and select the file that was downloaded from clicking on the Export link.
2. Review the "Class Roll" tab to ensure the emails inserted appropriately. If it is incorrect delete that sheet and move

- By selecting each button above the instructor is asked to select a file they would like to import. The required data is then automatically moved to the workbook where it is formatted and the features are added. This not only imports the Class Roll but also allows instructors to import email addresses into the Class roll. This will allow the future automated email system to work once the bugs are fixed.

- The Export feature is disabled for this project as it isn't transferring the necessary Macros for the new roll to function at its intended level.

Discussion of Learning and Conceptual Difficulties

This project definitely stretched my understanding of VBA. The most valuable learning experiences with this project came as a result of discussing it with Professor Allen and the TAs. We were able to work through ideas and come up with the best solution. Even though sometimes the solution I chose after those discussions was the same method I started with, the process of going through the various options broadened my understanding of VBA. An example of this is the added import/export feature. My first thought was a complicated Ribbon implementation but after talking with Josh we came up with the current feature even though that was not within the scope of my project. That discussion and others like it were invaluable as there are so many different ways to do something.

Going into the project I had no idea how difficult it would be to get VBA to read, interpret, and implement the university calendar into the class roll. I spent 10+ on my own and with Professor Allen and the TAs trying to work through it. Ultimately, I was unable to finish this task due to the magnitude of work required to complete. However I was able to successfully read the BYU Academic Calendar, Import it into Excel, and arrange the data in a readable way. To finish the automatic class date input a User form would need to be coded to allow the user to input the year the class is held, the semester the class is held, and the weekdays the class is held. This information would then be input into a macro that would read the date of the organized calendar data and transfer that date into the Class roll. This code is placed in the workbook in Module3 with comments.

Additionally, creating the Drop Student Feature was more of a challenge than I anticipated. Getting the roll to numerate itself after a row was removed and moved to the bottom was a challenge. I had to use make my ranges dynamic using variables so the sheet would adjust appropriately.

Finally, when the project was originally just going to be for personal use I had an automated attendance email option. Unfortunately, I was unable to finalize this feature for anyone's use but will be completing the needed adjustments for the Spring Semester.

Assistance

While working on this project I discussed several aspects with the TAs and we worked through solutions together. The two primary aspects were the out of scope implementation feature (import/export) and the population of class dates via the university academic calendar. Josh and I walked through various implementation options and he gave me the basic code for the new import/export feature. Professor Allen and Nathan helped me with the population of the class dates by working through and writing

the code together. Even though that portion was too complex to finish the code is included in Module 3 and could easily be turned into another project.

Conclusion

Ultimately I feel that this project was a great success. Even though I wasn't able to implement all the features I wanted to I plan to work through those out-of-scope features and use them in the second edition of this project. For now my supervisor is incredibly satisfied and the instructors that we have presented it to are very excited to start using it next semester.

Appendix 1

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Indoor Cycling														
2	Course: STAC 110	Section: 003	Curriculum ID: 12226	Title Code: 000											
3	Credit Hours: 0.50	Enrolled: 19	Req Size: 24	Section Type: DAY											
4	Pass/Fail Grade Rule: P E I														
5	Winter 2015 (05 Jan 2015 - 14 Apr 2015)														
6	Days	Time	Location	Instructor											
7	MW	10:00 - 10:50	137A RB	Wesson, Brent Edward											
8															
9															
10		Name	BYU ID	Standing	Hrs	Emphasis								Assignments	
11		1 Thomson Alexandra	491435236	Senior	0.5	Electrical Engineering	1								
12		2 Simpson Ryan	144308967	Senior	0.5	Communication Disorders	2								
13		3 Baker Claire	12700445	Senior	0.5	Pre-Management Core	3								
14		4 Rees Melanie	534084521	Senior	0.5	English	4								
15		5 Kelly Jessica	463722287	Sophomore	0.5	Communications Premajor	5								
16		6 Hardacre Sophie	4754214	Senior	0.5	Mechanical Engineering	6								
17		7 Harris Isaac	621546668	Sophomore	0.5	Communication Disorders Pre-Major	7								
18		8 Avery Kyle	316349501	Senior	0.5	Exercise Science	8								
19		9 Edmunds Fiona	274174541	Senior	0.5	Pre-Management Core	9								
20		10 Jones Jasmine	276109671	Senior	0.5	Communication Disorders	10								
21		11 Clark Sean	541674796	Senior	0.5	Communication Disorders	11								
22		12 Hughes Christian	676528441	Senior	0.5	Art History & Curatorial Studies	12								
23		13 Blake Wanda	85155185	Senior	0.5	Physiology & Developmental Biology	13								
24		14 Carr Alexander	350210946	Senior	0.5	History	14								
25		15 Graham Joseph	577786975	Masters Degree	0.5	Division of Continuing Education	15								
26		16 Parr Zoe	44399104	Senior	0.5	Advertising	16								
27		17 Black Olivia	709019652	Senior	0.5	Exercise & Wellness	17								
28		18 Rampling David	111552090	Masters Degree/Post-Bacc Studies	0.5	Business Administration	18								
29		19 Bell Keith	91803058	Senior	0.5	Nursing	19								

Appendix 2

1	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	
2	Indoor Cycling																										
3	Course: STAC 110	Section: 001	Curriculum ID: 12226	Title Code: 000																							
4	Credit Hours: 0.50	Enrolled: 24	Req Size: 24	Section Type: DAY																							
5	Pass/Fail Grade Rule: P/EI																										
6	Spring 2015 (28 Apr 2015 - 15 Jun 2015)																										
7	Days	Time	Location	Instructor																							
8	MTWTh	9:00 - 9:50	137A RB	Wesson, Brent Edward																							
9	Students Currently Enrolled in the Class																										
10		Name	Email	Standing	Hrs	Emphasis	Tardies	Absences	Make-ups Completed	5-Jan	7-Jan	12-Jan	14-Jan	21-Jan	26-Jan	28-Jan	2-Feb	4-Feb	9-Feb	11-Feb	17-Feb	18-Feb	23-Feb	25-Feb	2-Mar	4-Mar	9
11		1 Altabeal Dunia	rlolasm66@yahoo.com	Senior	0.5	Electrical Engineering	0	0	0																		
12		2 Andersen Kean	hcdlive@live.com	Senior	0.5	Communication Disorders	0	0	0																		
13		3 Andersen Styler	teraju@gmail.com	Senior	0.5	Pre-Management Core	0	0	0																		
14		5 Campbell Natalie	jabu_moleket@yahoo.com	Senior	0.5	English	0	0	0																		
15		6 Crowley Jordyn	soeungheng34@yahoo.com	Sophomore	0.5	Psychology	0	0	0																		
16		7 Farnsworth Michael	des443@yahoo.com	Senior	0.5	Mechanical Engineering	0	0	0																		
17		9 Hodgson Rebecca	ca432@ig.com.br	Sophomore	0.5	Communication Disorders	0	0	0																		
18		10 Johnson Tarryn	samanthakpkaya24@yahoo.in	Senior	0.5	Exercise Science	0	0	0																		
19		11 (Coke) Koch Marisa	crt.lam@yahoo.com.ph	Senior	0.5	Pre-Management Core	0	0	0																		
20		14 Livingston Ashley	edwardum402@hotmail.com	Senior	0.5	Communication Disorders	0	0	0																		
21		15 Lyles Robin	mrsgracedoddar@yahoo.co.jp	Senior	0.5	Communication Disorders	0	0	0																		
22		16 Merrill Stephanie	grace100d1daum.net	Senior	0.5	Art History & Curatorial	0	0	0																		
23		18 Muse Tandy	mrmxofor1@outlook.fr	Senior	0.5	PD Biology	0	0	0																		
24		19 Secreti Lyndy	mrmx.ofor@aol.fr	Senior	0.5	History	0	0	0																		
25		20 Seiland Bailey	barakhuao1@yahoo.es	Masters	0.5	Continuing Education	0	0	0																		
26		21 Weite Cassidy	peter.kof1@rediffmail.com	Senior	0.5	Advertising	0	0	0																		
27		22 Williams Shelby	guaranteoans@aol.com	Senior	0.5	Exercise & Wellness	0	0	0																		
28		23 Willis Jenny	malian.unarud@yahoo.com	Masters	0.5	Business Administration	0	0	0																		
29		24 Wood Jenessa	coney22@gmail.com	Senior	0.5	Nursing	0	0	0																		
30																											
31																											
32																											
33	Students that Dropped the Class																										
34		Name	Email	Standing	Hrs	Emphasis	Tardies	Absences	Make-ups Completed	5-Jan	7-Jan	12-Jan	14-Jan	21-Jan	26-Jan	28-Jan	2-Feb	4-Feb	9-Feb	11-Feb	17-Feb	18-Feb	23-Feb	25-Feb	2-Mar	4-Mar	9
35																											
36																											

Drop Student

Send Attendance Emails

Attendance Key	
x	Mark X if the student is present
T	Mark T if the student is tardy
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Class Time Example for 8:00 Class			
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