

Fun* with Basic Accountancy

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*Results may vary

Why do I need to know how to keep financial records?

Academia:

- Grants
- Conferences

Real life:

- Taxes
- Understanding how well your business is doing
- Legal compliance
- Personal finance*

*I don't do this

Generally Accepted Accounting Principles (GAAP)

Based on four assumptions:

- Accounting Entity
- Going Concern
- Monetary Unit Principle
- Time Period Principle

Generally Accepted Accounting Principles (GAAP)

Four basic principles:

- Historical Cost Principle
- Revenue Recognition Principle
(i.e. accrual-based accounting)
- Matching Principle
- Full Disclosure Principle

Generally Accepted Accounting Principles (GAAP)

Five constraints:

- Objectivity
- Materiality
- Consistency
- Conservatism (prudence)
- Cost-benefit relationship

Is Kirk or Spock in a better financial position?

Kirk

\$500 in the bank

Rent (\$1,000) already paid

Credit cards maxed out

Gets a Starfleet salary

Spock

\$1,000 in the bank

Rent (\$1,000) due tomorrow

\$5k available on credit cards

Left Starfleet to pursue Kolinahr

Accounts

Note there were four types of things to consider:

- **Assets** (e.g. cash, but can also be stuff)
- **Liabilities** (debt)
- **Income** (e.g. salary)
- **Expenses** (e.g. rent)

Cash \neq Profit!

The Accounting Equation

$$\text{Assets} - \text{Liabilities} = \text{Equity}$$

↑
stuff you own

↑
stuff you owe

↑
Value of
business



Debits and Credits

Dr	Asset	Cr
Increases		Decreases

Dr	Liability	Cr
Decreases		Increases

Dr	Expense	Cr
Increases		Decreases

Dr	Income	Cr
Decreases		Increases

Double-Entry Bookkeeping

Every action has an equal, opposite reaction.

For every **debit**, you must enter an equal **credit**.



	Debit	Credit
You get a \$10,000 loan		

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	
You sell tickets to travel to the Martian colony			

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	
You sell tickets to travel to the Martian colony			
Cash		7,000	
	Sales		7,000

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	
You sell tickets to travel to the Martian colony			
Cash		7,000	
	Sales		7,000
You buy fuel for the trip			

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	
You sell tickets to travel to the Martian colony			
Cash		7,000	
	Sales		7,000
You buy fuel for the trip			
Cash			2,000
	Fuel costs	2,000	

		Debit	Credit
You get a \$10,000 loan			
Cash		10,000	
	Loan		10,000
You buy a (cheap!) spaceship			
Cash			8,000
	Spaceship	8,000	
You sell tickets to travel to the Martian colony			
Cash		7,000	
	Sales		7,000
You buy fuel for the trip			
Cash			2,000
	Fuel costs	2,000	
TOTAL		27,000	27,000

The Trial Balance

		Debit	Credit
Assets			
Cash		7,000	
Fixed assets		8,000	
Liabilities			
Loan			10,000
Income			
Sales			7,000
Expenses			
Fuel		2,000	
TOTAL		17,000	17,000

Adjusting Entries

Adjusting entries are needed for accrual accounting to ensure income and expenses are recognized in the correct period.

- Prepayments (cash flow happens too soon)
- Accruals (cash hasn't flowed yet)

Matching

Income and costs should always be matched to the period covered by the accounts.

		Debit	Credit
\$1,000 of tickets are for next year			
Sales		1,000	
	Prepaid income		1,000

The Trial Balance

		Debit	Credit
Assets			
Cash		7,000	
Fixed assets		8,000	
Liabilities			
Loan			10,000
Prepaid income			1,000
Income			
Sales			6,000
Expenses			
Fuel		2,000	
TOTAL		17,000	17,000

Accounting for Stock

Let's say each ticket comes with a spacesuit.

		Debit	Credit
You buy 50 spacesuits for \$100 each			
Stock		5,000	
	Cash		5,000

Accounting for Stock

Let's say each ticket comes with a spacesuit.

		Debit	Credit
You buy 50 spacesuits for \$100 each			
Stock		5,000	
	Cash		5,000
You have sold 6 tickets			
Stock			600
		600	

The Trial Balance

		Debit	Credit
Assets			
Cash		7,000	
Fixed assets		8,000	
Stock		600	
Liabilities			
Loan			10,000
Prepaid income			1,000
Income			
Sales			6,000
Expenses			
Fuel		2,000	
TOTAL		17,000	17,000

Depreciation

The spaceship cost you money and should be represented in your profit, but not all at once.

		Debit	Credit
Spaceship depreciation over 8 years			
Depreciation		1,000	
	Fixed assets		1,000

The Trial Balance

		Debit	Credit
Assets			
Cash		7,000	
Fixed assets		7,000	
Liabilities			
Loan			10,000
Prepaid income			1,000
Income			
Sales			6,000
Expenses			
Fuel		2,000	
Depreciation		1,000	
TOTAL		17,000	17,000

Debits and credits only have to be equal in value, not number

e.g. Let's pay off some of that loan

		Debit	Credit
Loan payment			
Cash			1,000
	Loan	900	
	Interest	100	

The Trial Balance

		Debit	Credit
Assets			
Cash		6,000	
Fixed assets		7,000	
Liabilities			
Loan			9,100
Prepaid income			1,000
Income			
Sales			6,000
Expenses			
Fuel		2,000	
Depreciation		1,000	
Interest		100	
TOTAL		16,100	16,100

Financial Statements

A set of financial statements consists of:

Balance Sheet

Profit & Loss Statement

Cash Flow Statement (sometimes)

Financial Statements

A set of financial statements consists of:

Balance Sheet (what is your business worth?)

- Assets
- Liabilities
- Equity

Profit & Loss Statement

Cash Flow Statement (sometimes)

Financial Statements

A set of financial statements consists of:

Balance Sheet (what is your business worth?)

- Assets
- Liabilities
- Equity

Profit & Loss Statement (are you making money?)

- Income
- Expenses

Cash Flow Statement (sometimes)

Financial Statements

A set of financial statements consists of:

Balance Sheet

- Assets
- Liabilities
- Equity

Profit & Loss Statement

- Income
- Expenses

Cash Flow Statement (sometimes)

- Movement in cash

The Balance Sheet

		Debit	Credit
Assets			
Cash		6,000	
Fixed assets		7,000	
Liabilities			
Loan			9,100
Prepaid Income			1,000
Equity			
Retained Earnings			2,900
TOTAL		13,000	13,000

The Profit & Loss



		Debit	Credit
Income			
Sales			6,000
Expenses			
Fuel		2,000	
Depreciation		1,000	
Interest		100	
Profit/(Loss)			2,900

Let's look at some more
useful examples...

Bashfest '15 Accounts

Date		Description	Total	Assets			Liabilities		Income	Expenses												Check		
				Cash	Credit card	Prepayments	Creditors	Accruals	Registration	Hotel	Airfare	Speakers' expenses	Reception	Dinner	Lunches & Breaks	Materials/Supplies	Posters	Wireless cards	Proceedings	T-shirts	Credit card fees	AV		
04 Sep 15		Flights (all except Brad Tucker)	(6,227.00)					(6,227.00)																-
28 Sep 15		Brad Tucker flight (to be reimbursed)	(400.00)					(400.00)																-
28 Sep 15		Hotels	(4,279.95)					(4,279.95)		4,279.95	6,227.00 400.00													-
28 Sep 15		Poster stands	(205.00)					(205.00)									205.00							-
28 Sep 15		Registrations	525.00		525.00				(525.00)															-
28 Sep 15		Credit card fees	(18.38)		(18.38)																18.38			-
28 Sep 15		Wireless cards	(12.50)				(12.50)																	-
14 Oct 15		Dinner	(5,353.20)					(5,353.20)						5,353.20				12.50						-
14 Oct 15		Reception	(3,102.80)					(3,102.80)																-
14 Oct 15		O's 10/19	(2,486.26)					(2,486.26)					3,102.80											-
14 Oct 15		O's 10/20	(2,008.96)					(2,008.96)							2,486.26 2,008.96									-
14 Oct 15		T-shirts	(598.29)					(598.29)													598.29			-
14 Oct 15		Proceedings	(1,715.00)					(1,715.00)																-
15 Oct 15		Lanyards	(189.44)				(189.44)												1,715.00					-
15 Oct 15		Badges	(92.44)				(92.44)									189.44 92.44								-
16 Oct 15		T-shirts - final	(10.50)				(608.79)	598.29																-
21 Oct 15		Dinner - final invoice	334.80				(5,018.40)	5,353.20						(334.80)										-
21 Oct 15		Final hotel cost	(48.80)				(4,328.75)	4,279.95		48.80														-
21 Oct 15		Final flight cost	44.15				(6,582.85)	6,627.00			(44.15)													-
11 Nov 15		Reception - final	318.80				(2,784.00)	3,102.80																-
12 Jul 16		Speaker reimbursements	(1,950.10)				(1,950.10)					1,950.10												-
12 Jul 16		O's 10/19 - final invoice	(32.45)				(2,518.71)	2,486.26																0.00
12 Jul 16		O's 10/20 - final invoice	-				(2,008.96)	2,008.96							32.45									-
13 Jul 16		Poster stands - final	(93.32)				(298.32)	205.00										93.32						-
13 Jul 16		Proceedings - final	-				(1,715.00)	1,715.00																-
				(27,601.64)	-	506.63	-	(28,108.26)	0.00	(525.00)	4,328.75	6,582.85	1,950.10	2,784.00	5,018.40	4,527.67	281.88	298.32	12.50	1,715.00	608.79	18.38	-	0.00

Bashfest '15 Profit & Loss

Description	Dr	Cr
<u>INCOME</u>		
Registration		525.00
		 525.00
TOTAL INCOME		 525.00
<u>EXPENSES</u>		
Direct		
Hotel	4,328.75	
Airfare	6,582.85	
Speakers' expenses	1,950.10	
Reception	2,784.00	
Dinner	5,018.40	
Lunches & Breaks	4,527.67	
Wireless cards	12.50	
T-shirts	608.79	
	<u>25,813.06</u>	
Overheads		
Materials/ Supplies	281.88	
Posters	298.32	
Proceedings	1,715.00	
Credit card fees	18.38	
AV	-	
	<u>2,313.58</u>	
TOTAL EXPENSES	<u>28,126.64</u>	
TOTAL	<u>28,126.64</u>	<u>525.00</u>
NET SURPLUS/ (LOSS)		<u><u>(27,601.64)</u></u>

Bashfest '15 Balance Sheet		
Description	Dr	Cr
<u>ASSETS</u>		
Cash		-
Credit card	506.62	
Prepayments		-
TOTAL ASSETS	506.62	
<u>LIABILITIES</u>		
Creditors		
Creditors		28,108.26
Accruals		(0.00)
TOTAL LIABILITIES		28,108.26
<u>EQUITY</u>		
Retained earnings		(27,601.64)
TOTAL	506.62	506.62

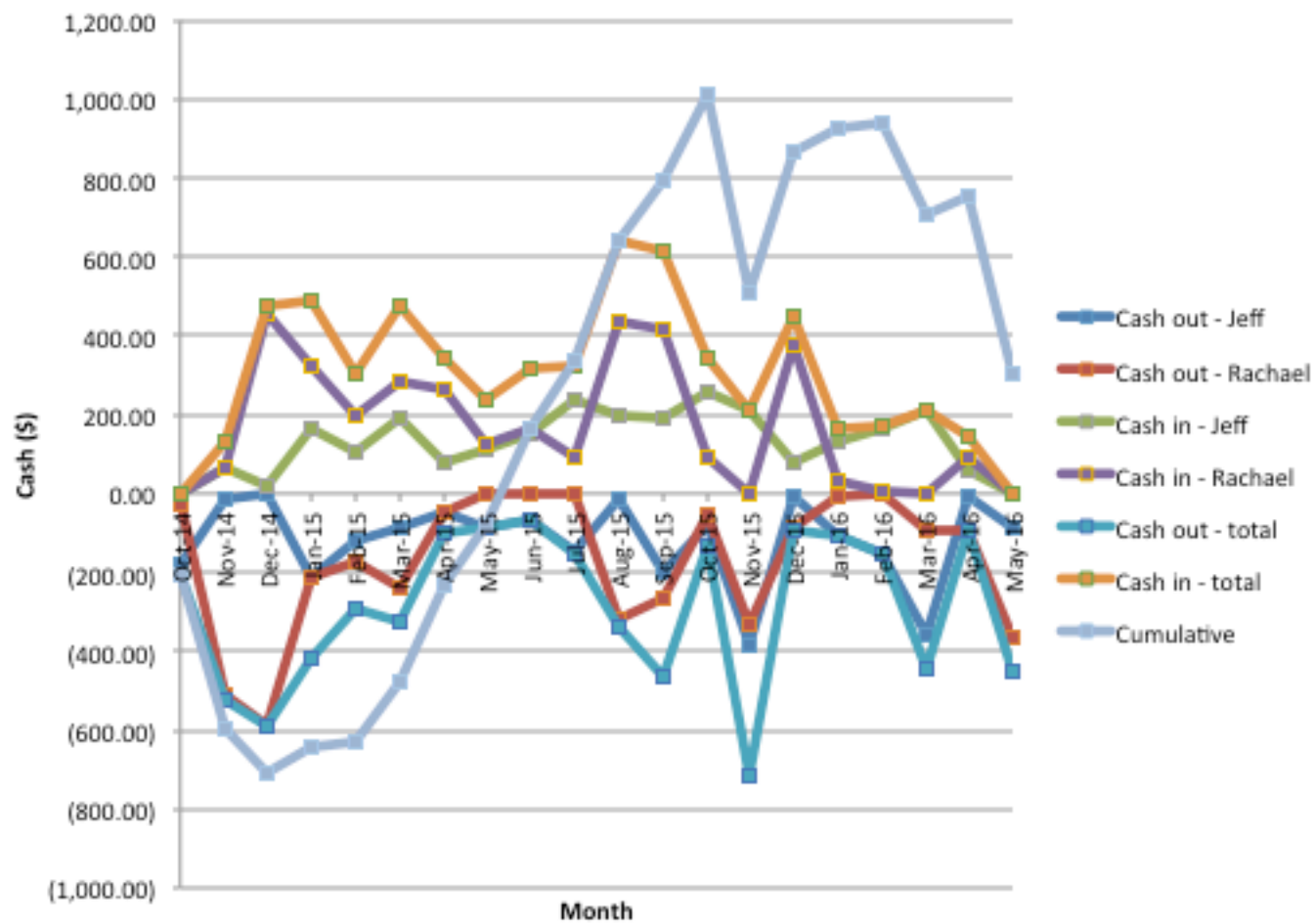
Astronomy on Tap ATX Accounts																					Check			
Date	Description		Total		Assets					Liabilities		Income					Expenses							
					Cash	Credit card	Stock		Shirts	Glasses	Jeff	Rachael	Donations	Merchandise				Merchandise	Speakers	Prizes	Advertising	Hardware	Sundry	Finance
							Stickers	Buttons						Koozies	Stickers	Buttons	Koozies							
31 Oct 14	Glow necklaces		(18.94)								(18.94)													
31 Oct 14	Buttons		-							(35.92)														
31 Oct 14	Stickers		-			84.00	35.92			(84.00)														
31 Oct 14	Postcards		(43.72)							(43.72)														
31 Oct 14	Amazon credit card dongle		(10.83)								(10.83)										10.83			
31 Oct 14	Sale to Raquel		1.00							1.00				(1.00)	(1.00)									
31 Oct 14	Sale to Natalie		1.00							1.00														
31 Oct 14	Adjust stock		(1.14)			(0.79)	(0.36)											1.14						
31 Oct 14	Drs. Jeff & Rachael		(2.29)			(1.57)	(0.72)											2.29						
31 Oct 14	Receipt books		(2.50)							(2.50)											2.50			
31 Oct 14	Cash box		(12.10)							(12.10)											12.10			
05 Nov 14	T-shirt deposit		-					245.00		(245.00)														
18 Nov 14	Testing		-		2.00					(1.00)	(1.00)													
18 Nov 14	Shirt		15.00		15.00																(15.00)			
18 Nov 14	Shirt		15.00		15.00																(15.00)			
18 Nov 14	Shirt & sticker		16.00		16.00																(15.00)			
18 Nov 14	Shirt		15.00	15.00									(1.00)								(15.00)			
18 Nov 14	Sticker		1.00	1.00									(1.00)								(15.00)			
18 Nov 14	Sticker		1.00	1.00									(1.00)								(15.00)			
18 Nov 14	Stickers		2.00	2.00									(2.00)								(15.00)			
18 Nov 14	Shirt		15.00	15.00																	(15.00)			
18 Nov 14	Shirt, button, sticker		17.00		17.00								(1.00)	(1.00)							(15.00)			
18 Nov 14	2 stickers		2.00	2.00									(2.00)								(15.00)			
18 Nov 14	Shirt & sticker		16.00	16.00									(1.00)								(15.00)			
18 Nov 14	Sticker		1.00	1.00									(1.00)								(15.00)			
18 Nov 14	Shirt		15.00	15.00									(1.00)								(15.00)			
18 Nov 14	Stock		(81.25)			(7.85)	(0.36)		(73.04)									81.25						
18 Nov 14	Shirts		-					266.26		(266.26)														
18 Nov 14	Cash		-	(68.00)	(65.00)					65.00	68.00													
30 Nov 14	Pencils		(10.06)							(10.06)											10.06			
10 Dec 14	Projector screen		(215.41)								(215.41)								215.41					
10 Dec 14	Tip jars		(26.84)								(26.84)								26.84					
14 Dec 14	Badges		(19.99)								(19.99)									19.99				
15 Dec 14	Final Cut Pro		(324.74)								(324.74)								324.74					
16 Dec 14	Tips		236.00							236.00		(236.00)												
16 Dec 14	Merchandise sales		89.39					(127.82)		217.20		(7.20)						127.82						
16 Dec 14	credit cards		10.36		22.00		(2.51)	(9.13)						(7.00)			11.64							
17 Dec 14	credit cards		(22.00)							22.00							(15.00)							
05 Jan 15	donation at AAS		100.00							100.00		(100.00)												
06 Jan 15	Emily Rice shirt		10.87					(9.13)		20.00		(5.00)					(15.00)	9.13						
14 Jan 15	Glow necklaces		(34.99)								(34.99)							34.99						
14 Jan 15	SD card		(32.46)								(32.46)										32.46			
17 Jan 15	file labels		(4.32)								(4.32)							4.32						
20 Jan 15	Moon tips		20.00							20.00		(20.00)												
20 Jan 15	Mars tips		133.00							133.00		(133.00)												
20 Jan 15	Scholz		(120.00)								(120.00)													
20 Jan 15	cc sales		17.83		46.00	(0.79)		(27.39)					(1.00)				(45.00)	28.17			120.00			
20 Jan 15	cash sales		7.80	20.00		(2.36)	(0.72)	(9.13)					(3.00)	(2.00)			(15.00)	12.20						
21 Jan 15	Projector screen		150.00							150.00										(150.00)				
21 Jan 15	tfr		(20.00)	(46.00)						46.00	20.00													
21 Jan 15	Shirts given away		(82.17)					(82.17)										82.17						
21 Jan 15	Buttons & stickers given away		(2.29)			(1.57)	(0.72)											2.29						
29 Jan 15	T-shirt deposit		-					174.00		(174.00)														
31 Jan 15	Cables		(54.80)							(54.80)											54.80			
11 Feb 15	T-shirts		-					174.35		(174.35)														
17 Feb 15	Tips (Interstellar thumbs down)		45.00	45.00								(45.00)												
17 Feb 15	Tips (Interstellar thumbs up)		92.00	92.00								(92.00)												
17 Feb 15	Scholz		(120.00)							(120.00)											120.00			
17 Feb 15	cc sales		105.00		105.00																			
17 Feb 15	cash sales		64.00	64.00									(3.00)	(1.00)			(60.00)							
17 Feb 15	tfr		(76.40)	(201.00)	(105.00)	(2.36)	(0.36)	(73.69)		105.00	201.00	(16.99)						76.40						
05 Mar 15	HDMI cable		(16.99)																					
06 Mar 15	Audio cable adapter		(5.40)							(5.40)											16.99			
07 Mar 15	Black spray paint		(4.88)								(4.88)										5.40			
07 Mar 15	Spotlights (2) & bulb (1)		(73.96)							(73.96)											4.88			
07 Mar 15	Foil pans for barndoors		(7.88)							(7.88)											73.96			
18 Mar 15	Tips - Mars no		60.47	60.47								(60.47)									7.88			
18 Mar 15	Tips - Mars yes		228.65	228.65								(228.65)												
18 Mar 15	Cash sales		82.00	82.00								(3.00)	(1.00)	(3.00)			(75.00)							
18 Mar 15	cc sales		105.00		105.00																			
18 Mar 15	stock		(103.53)			(0.79)	(1.08)	(101.67)																
18 Mar 15	Scholz		(171.67)							(171.67)								103.53						
18 Mar 15	tfr		-	(371.12)	(105.00)					194.34	281.78										120.00			
18 Mar 15	Fix stock for giveaways		-																					
29 Mar 15	Tuneskit		(44.95)								(44.95)										44.95			
03 Apr 15	Return spotlights (2) & bulb (1)		73.96							73.96											(73.96)			
10 Apr 15	Cash sales		18.00	18.00																				
10 Apr 15	tfr		-	(18.00)						3.00	15.00													
10 Apr 15	donation from Randi		35.00								35.00		(35.00)											
16 Apr 15	Table cover		(32.43)							(32.43)														
21 Apr 15	Tips - XDF		111.00	111.00									(111.00)								32.43			
21 Apr 15	Tips - Crab		99.00										(99.00)											
21 Apr 15	Cash sales		3.00	3.00										(2.00)	(1.00)									
21 Apr 15	Midway Field House		(50.00)							(50.00)								50.00						
22 Apr 15	Cash sales		2.00	2.00										(2.00)										
22 Apr 15	tfr		-	(215.00)						215.00														
22 Apr 15	Donation to Food Center		(5.00)							(5.00)														
29 Apr 15	Table for Science Extravaganza		(10.00)							(10.00)								5.00						
19 May 15	Postcards		(21.11)							(21.11)														
26 May 15	North Door		(66.00)																					
26 May 15	Cash sales		6.00	6.00										(1.00)	(5.00)			66.00						
26 May 15	Tips - Eagle		126.75							111.50	15.25	(126.75)												
26 May 15	Tips - Whirlpool		104.25								104.25	(104.25)												
26 May 15	tfr		-	(6.00)							6.00													
30 Jun 15	North Door		(68.00)							(68.00)														

Astronomy on Tap ATX Balance Sheet

Description	Dr	Cr
<u>ASSETS</u>		
Cash		-
Credit card		-
Stock		
Stickers	0.01	
Buttons	14.72	
Koozies		-
Shirts	206.71	
Glasses	98.36	
TOTAL ASSETS	319.80	
<u>LIABILITIES</u>		
Creditors		
Jeff		(292.70)
Rachael		(11.20)
TOTAL LIABILITIES		(303.90)
<u>EQUITY</u>		
Retained earnings		623.70
TOTAL	319.80	319.80

		Cash out		Cash in		Total out	Total in	Net	Cumulative
		Jeff	Rachael	Jeff	Rachael				
Total		(2,342.88)	(3,413.56)	2,635.58	3,424.76	(5,756.44)	6,060.34	303.90	4,384.47
Oct-14		▶ (178.24)	▶ (29.77)	▶ 1.00	▶ 1.00	(208.01)	2.00	(206.01)	(206.01)
Nov-14		▶ (11.06)	▶ (512.26)	▶ 65.00	▶ 68.00	(523.32)	133.00	(390.32)	(596.33)
Dec-14		▶ 0.00	▶ (586.98)	▶ 22.00	▶ 453.20	(586.98)	475.20	(111.78)	(708.11)
Jan-15		▶ (210.78)	▶ (209.79)	▶ 166.00	▶ 323.00	(420.57)	489.00	68.43	(639.68)
Feb-15		▶ (120.00)	▶ (174.35)	▶ 105.00	▶ 201.00	(294.35)	306.00	11.65	(628.03)
Mar-15		▶ (87.24)	▶ (238.49)	▶ 194.34	▶ 281.78	(325.73)	476.12	150.39	(477.64)
Apr-15		▶ (47.43)	▶ (50.00)	▶ 76.96	▶ 265.00	(97.43)	341.96	244.53	(233.11)
May-15		▶ (87.11)	▶ 0.00	▶ 111.50	▶ 125.50	(87.11)	237.00	149.89	(83.22)
Jun-15		▶ (68.00)	▶ 0.00	▶ 150.00	▶ 164.68	(68.00)	314.68	246.68	163.46
Jul-15		▶ (147.99)	▶ (3.00)	▶ 235.32	▶ 91.00	(150.99)	326.32	175.33	338.79
Aug-15		▶ (15.19)	▶ (319.75)	▶ 200.60	▶ 437.68	(334.94)	638.28	303.34	642.13
Sep-15		▶ (197.00)	▶ (263.79)	▶ 194.52	▶ 418.92	(460.79)	613.44	152.65	794.78
Oct-15		▶ (80.00)	▶ (52.20)	▶ 257.44	▶ 89.00	(132.20)	346.44	214.24	1,009.02
Nov-15		▶ (382.87)	▶ (332.53)	▶ 214.17	▶ 0.00	(715.40)	214.17	(501.23)	507.79
Dec-15		▶ (5.00)	▶ (86.40)	▶ 78.42	▶ 374.00	(91.40)	452.42	361.02	868.81
Jan-16		▶ (103.87)	▶ (5.00)	▶ 132.55	▶ 33.00	(108.87)	165.55	56.68	925.49
Feb-16		▶ (154.60)	▶ 0.00	▶ 161.54	▶ 8.00	(154.60)	169.54	14.94	940.43
Mar-16		▶ (357.00)	▶ (90.42)	▶ 213.26	▶ 0.00	(447.42)	213.26	(234.16)	706.27
Apr-16		▶ (4.50)	▶ (92.00)	▶ 55.96	▶ 90.00	(96.50)	145.96	49.46	755.73
May-16		▶ (85.00)	▶ (366.83)	▶ 0.00	▶ 0.00	(451.83)	0.00	(451.83)	303.90

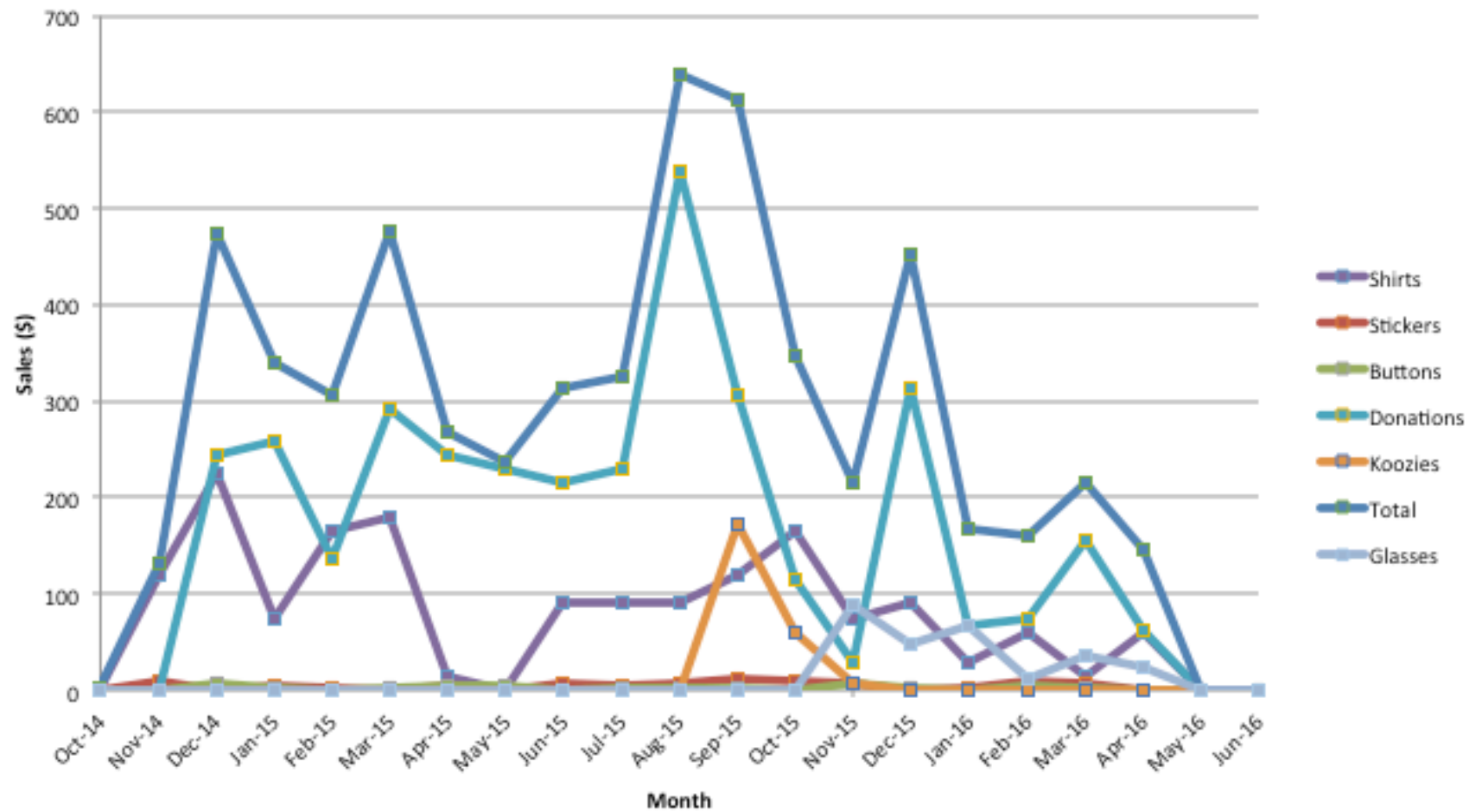
Cash flow



Astronomy on Tap ATX Profit & Loss

Description	Dr	Cr
<u>INCOME</u>		
Merchandise		
Stickers		91.00
Buttons		48.00
Koozies		240.00
Shirts		1,665.00
Glasses		276.00
		<u>2,320.00</u>
Donations		3,513.85
TOTAL INCOME		<u>5,833.85</u>
<u>EXPENSES</u>		
Direct		
Merchandise	1,921.84	
Speakers	1,379.27	
Prizes	117.44	
	<u>3,418.55</u>	
Overheads		
Advertising	155.41	
Finance	35.90	
Hardware	1,478.30	
Sundry	121.99	
	<u>1,791.60</u>	
TOTAL EXPENSES	<u>5,210.15</u>	
TOTAL	<u>5,210.15</u>	<u>5,833.85</u>
NET SURPLUS/ (LOSS)		<u><u>623.70</u></u>

Income by Month



Easy way to manage grants...

[illegible]

