# ACCT 101, Session 2: Bookkeeping, accruals, and adjusting

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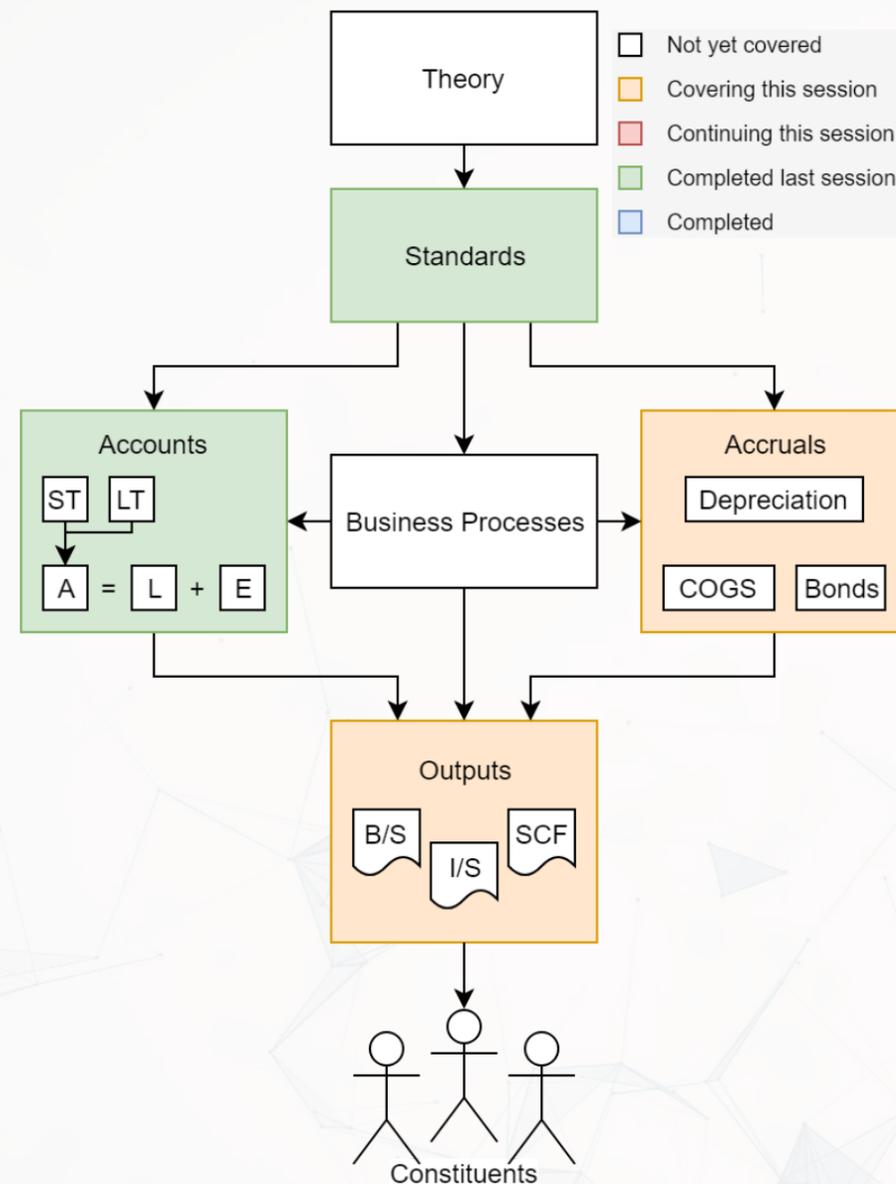
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# Front matter

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- Homework 1 due next week
    - Available on eLearn
    - Submit on eLearn
- Covers topics from today's session

# Learning objectives



- Bookkeeping (Chapter 2)
  1. Understand how accounting works
  2. Record transactions in the journal
  3. Construct a trial balance
- Accruals and Adjustments (Chapter 3)
  1. Relate accrual accounting and cash flows
  2. Apply the revenue and matching principals
  3. Adjust accounts

# Debits and credits

# History: Before double entry

- 8500 BCE: Shaped clay tokens represent commodities
- 200 BCE: Arabic numerals (except **0**)
- 600 CE: **0** developed
- 800 CE: 10-digit numerals spread throughout Europe



MS 4631
Bulla-envelope with 11 plain and complex tokens inside.
Near East, ca. 3700-3200 BC

http://www.schoyencollection.com/

# History: Double entry

- 1400s CE: First evidence of *double entry* accounting in Italy
- 1494 CE Italian monk and scholar Luca Pacioli publishes first text on *double entry* bookkeeping
  - Summa de Arithmetica, Geometria, Proportioni et Propotionalita
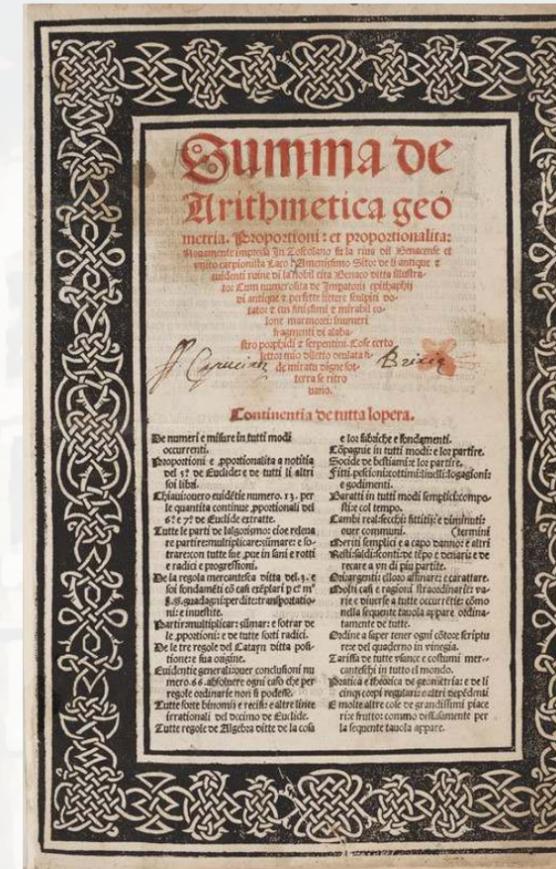
# History: Journal entries



**(1491)**

7. *Faro debetore* Tomasone del Buono e *creditore* spese di mercanzie di s. iiij d'oro per spese fatta a un fardello di panno corsato mandato da Lucca da Bonaccorsi a Libro 203/100 lib—siiij d—

**(1553)**

10. Devonshire Kerseys is debitor to Laurance Fabian, draper, and is for 10 pieces at 36 s. a piece—etc.—L. 108 s—d—

7. *I make debtor* Tomaso del Buono and *creditor* Merchandise Expenses for 4 s. in gold, for expenses incurred on a bale of cloth sent by Lucca da Bonaccorsi in the book 203/100 lib. —s4d—

**(1570)**

14. Roggen *soll an* Hering, hab ich mit Audreas Klur von Thorn einen stick getroffen—etc.
fl. 472.15—

**(1595)**

11. Cassa van ghereden ghelde *is schuldich aen* Cappital van my 8000 guld. Ende is voor verscheyden penninghen van gout ende silver, so ick in mynen handen hebbe, omme daermede te dryuen den handel van coopmanchap. Godt wil my verleenen ghewin, ende behaeden voor verlies. Amen....g. 8000

14. Rye *owes to* Herring, which I have bartered with Audreas Klur of Thorn—etc..fl. 472.15

11. Ready money *is indebted to* Capital for my 8000 guilders. And is for different coins of gold and silver that I have in hand to use in pursuing the trade of merchandise. God will grant me profit and preserve me from loss. Amen...g. 8000

Images from Littleton 1928 TAR.

# History: Journal entry evolution



Shakespeare likely did this sort of work for the British Navy! (Source: Reynolds 1974 JAR)

# History: Impact

The Principles of Book-keeping by Double Entry constitute a theory which is mathematically by no means uninteresting: it is in fact like Euclid's theory of ratios an absolutely perfect one, and it is only its extreme simplicity which prevents it from being as interesting as it would otherwise be.

– Arthur Cayley, FRS, The Principles of Book-keeping by Double Entry, 1894.

Bookkeeping has become a real technology instead of a simple clerical routine, and in addition there has grown up a profession of accounting which reaches quite beyond bookkeeping.

– A. C. Littleton, The Evolution of the Journal Entry, 1928.

*Debits*

on

the

*left*

*Credits*

on

the

*right*

> Memorize this!

> This is double entry accounting

# Debits and credits

## Debits (DR)

- Increase assets
- Decrease liabilities
- Decrease equity
  - Decrease revenue
  - Increase expenses

## Credits (CR)

- Decrease assets
- Increase liabilities
- Increase equity
  - Increase revenue
  - Decrease expenses

The side of an account that increases its balance is called the account's *normal balance*

Debits **always** equal credits for a transaction

# Representing accounts: T-accounts

# Normal balances

# Review: Debits & credits

1. Where do debits go?
2. Where do credits go?
3. What do debits equal?
4. What do credits equal?

# Why does this all matter?

$$A = L + E \qquad A, L, E \in (-\infty, \infty)$$
$$DR = CR \qquad DR, CR > 0$$

- Both of these equations inherently require that *at least* two changes per transaction
  - For the top equation, the changes must either:
    - Affect both sides in the same direction, or
    - Cancel out within one side
  - For the bottom equation, the change must have a debit and a credit
- As these hold at the smallest element of the system, they aggregate up to hold for any amount of transactions
  - I.e., for a whole company or any subset thereof

Now we have a robust way to check for mistakes anywhere in our accounting system – just check each equation!

# Bookkeeping

# Accounts

- Assets: Cash, A/R, inventory, equipment, …
- Liabilities: A/P, debt, expenses payable, …
- Equities: Expenses, revenue, capital, ret. earnings, …
- *Chart of Accounts*
    - Granularly documents all accounts the firm has

# Source documents

- The paper trail
- Establishes amounts
- Confirms a traction occurred or was contracted
- Allows for analyzing and verifying at the transaction level
  - Needed for auditing!
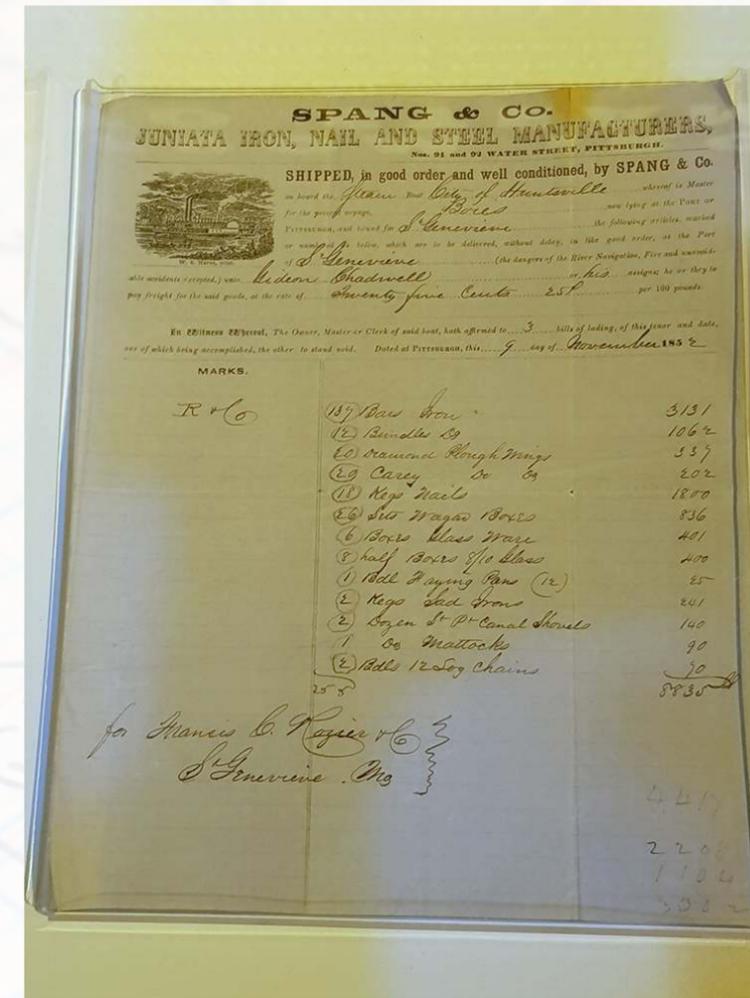


Bill of laiding, 1852

Heinz Museum

# General journal

- Where everything is recorded first
    - Everything
    - Every little transaction
- Specifies the accounts, values, and document for each transaction
    - We will skip references
    - We will be doing journal entries through session 9
- Always *list debits first*

| General Journal | | | | GJ1 |
|---|---|---|---|---|
| Date | Account Title and Description | Ref. | Debit | Credit |
| 20X1 | | | | |
| Aug. 1 | Cash | | 50,000 | |
| | Notes Payable | | | 50,000 |
| | Borrowed $50,000 | | | |
| 3 | Equipment | | 30,000 | |
| | Cash | | | 30,000 |
| | Purchased equipment | | | |
| 6 | Vehicles | | 20,000 | |
| | Notes Payable | | | 18,000 |
| | Cash | | | 2,000 |
| | Purchased delivery truck | | | |

DR = CR for *each entry*

# Constructing journal entries

Sum of DR = Sum of CR

| Date | Account | DR | CR |
|---|---|---|---|
| DATE HERE | Debit 1 | XX.XX | |
| | Debit 2 (if needed) | XX.XX | |
| | ... | ... | |
| | Credit 1 | | XX.XX |
| | Credit 2 (if needed) | | XX.XX |
| | ... | | ... |
| Explanation of above transaction here | | | |

Date at the start of entry

Debits listed first

Credits indented

Values paired with accounts

Examples: Cash sale, inventory purchase, and paying wages

| Date | Account | DR | CR |
|---|---|---|---|
| 20XY.01.01 | Cash | 100.00 | |
| | Revenue | | 100.00 |
| Cash sale of $100 | | | |
| 20XY.01.02 | Inventory | 250.00 | |
| | Accounts payable (A/P) | | 250.00 |
| Purchased $250 of inventory on account | | | |
| 20XY.01.03 | Wage expense | 500.00 | |
| | Wages payable | 500.00 | |
| | Cash | | 1,000.00 |
| Paid $1,000 in wages;  $500 was previously recognized (prerecorded) | | | |

In order by date

# Constructing journal entries

1. Get the in class activity spreadsheet
   - Session_2_Activity.xlsx
2. We'll go through the first three transactions together
   - Journal entries
3. Journal (i.e., right out journal entries for) the next 11 transactions with your group in the blue tab of the spreadsheet
   - We'll do the rest of the activity throughout the class today

# General ledger

- An aggregation of all the accounts
- Shows all account balances
- Includes details of each account
- T-accounts sufficient for this course

| Cash | | Accounts payable | | Revenue | |
|---|---|---|---|---|---|
| $5,000 | | | $2,000 | | $100 |
| $100 | | | $250 | | |
| | $1,000 | | | | |
| $4,100 | | | $2,250 | | $100 |

| Inventory | | Wages payable | | Wage expense | | Share capital | |
|---|---|---|---|---|---|---|---|
| $100 | | | $500 | $500 | | | $2,600 |
| 250 | | $500 | | | | | |
| $350 | | | -- | $500 | | | $2,600 |

Starting balances listed in grey.  Note that Revenues and Expenses always start with 0 balance.

DR = $4,100 + $350 + $500 = $4,950
CR = $2,250 + $100 + $2,600 = $4,950
DR = CR ✓

A = $4,100 + $350 = $4,450
L = $2,250 + $0
E = $100 - $500 + $2600 = $2,200
A = L + E ✓

# Trial balance

- Shows all account balances just like the general ledger
  - Make sure they add up!
- Use it to verify **DR = CR**
- Use it to verify the **accounting equation**
- Usually prepared at the end of a period
- Can prepare income statement and balance sheet from it

**ShineBrite Car Wash, Inc.**
**Trial Balance**
**April 30, 20X4**

| Account Title | Balance | |
| --- | --- | --- |
| | Debit | Credit |
| Cash | $33,300 | |
| Accounts receivable | 2,000 | |
| Supplies | 3,700 | |
| Land | 20,000 | |
| Accounts payable | | $ 1,800 |
| Share capital | | 50,000 |
| Dividends | 2,100 | |
| Service revenue | | 10,000 |
| Gain on sale of land | | 2,000 |
| Rent expense | 1,100 | |
| Salary expense | 1,200 | |
| Utilities expense | 400 | |
| Total | $63,800 | $63,800 |

DR = CR for totals

# Constructing the trial balance

| Date | Account | DR | CR |
|------|---------|----|----|
| 20XY.01.01 | Cash | 100.00 | |
| | Revenue | | 100.00 |
| Cash sale of $100 | | | |
| 20XY.01.02 | Inventory | 250.00 | |
| | Accounts payable (A/P) | | 250.00 |
| Purchased $250 of inventory on account | | | |
| 20XY.01.03 | Wage expense | 500.00 | |
| | Wages payable | 500.00 | |
| | Cash | | 1,000.00 |
| Paid $1,000 in wages;  $500 was previously recognized (prerecorded) | | | |

**Trial Balance**
**Month DD, YYYY**

| Account Title | Debit | Credit |
|---------------|-------|--------|
| Cash | 4,100 | |
| Inventory | 350 | |
| Accounts payable | | 2,250 |
| Wages payable | | 0 |
| Share capital | | 2,600 |
| Revenue | | 100 |
| Wage Expense | 500 | |
| Total | 4,950 | 4,950 |

Cash

| 5,000 | |
| 100 | |
| | 1,000 |
| 4,100 | |

Wages payable

| | 500 |
| 500 | |
| | 0 |

Inventory

| 100 | |
| 250 | |
| 350 | |

Revenue

| | 100 |
| | 100 |

Accounts payable

| | 2,000 |
| | 250 |
| | 2,250 |

Wage expense

| 500 | |
| 500 | |

Share capital

| | 2,600 |
| | 2,600 |

# Limits of the trial balance

- Can't catch:
  - Unrecorded transactions
    - Because there's no trace of them
  - Wrong amounts in transactions that balance in the journal
    - Everything still balances
  - Wrong accounts of the same type used in the journal
    - Everything still balances
    - $\cancel{A = L + E}$

# What you can catch

- Let the *Out of balance* (OOB) amount be:
  - $OOB = Assets - Liabilities - Equity$
- If OOB / 2 is an integer
  - DR and CR in a transaction may be flipped
    - Ex.: Recorded a cash sale as a CR to cash and a CR to revenue
    - Should be a DR to cash and a CR to revenue
- If OOB / 9 is an integer, there may be a:
  - Slide error (multiplied by 10 or divided by 10):
    - Ex.: Recorded 5,400 instead of 54,000
  - Transposition error (flipped the first 2 digits)
    - Ex.: Recorded 45,000 instead of 54,000

# T-accounts and the trial balance

1. Return to the in class activity

2. We'll do the first one as a class

3. Finish the rest of the activity with your group

   - Do the two green tabs
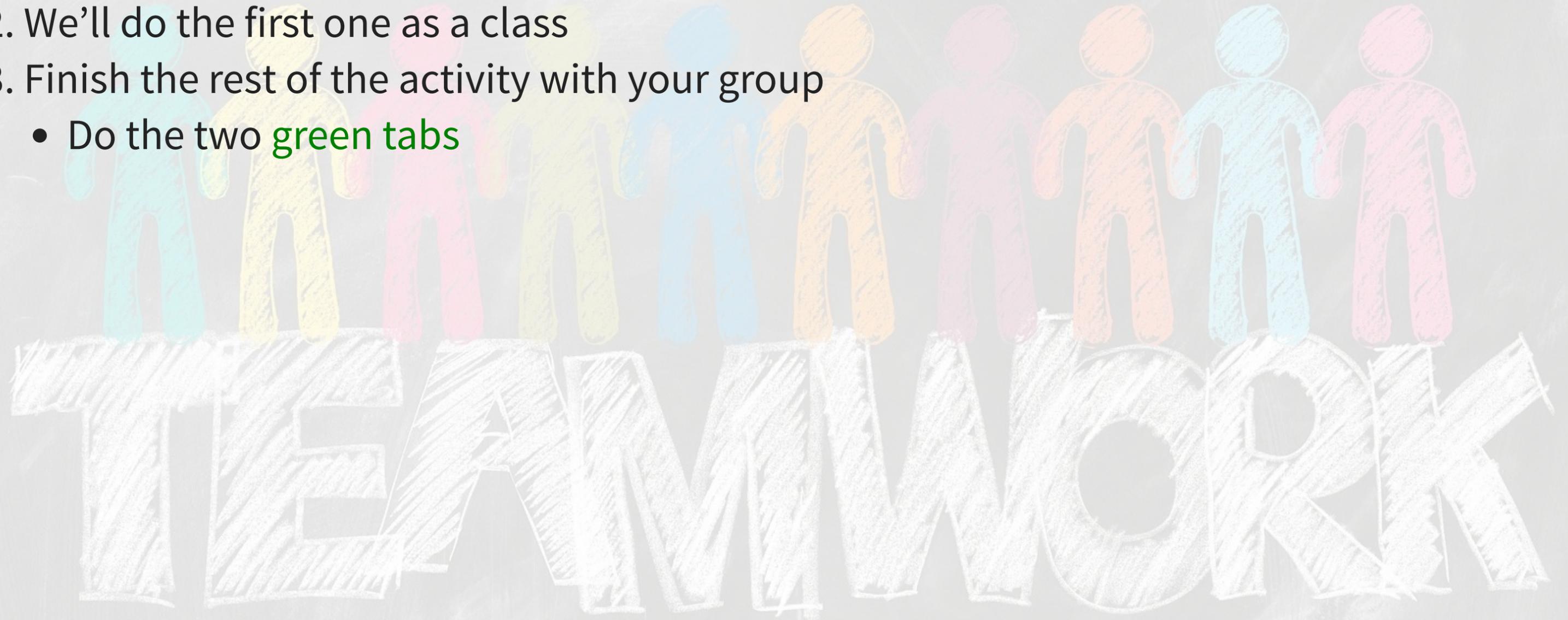
# Accruals vs. cash

# Cash basis accounting

- Records cash only transactions
- Used by small companies
- $Profit = Cash\ in - Cash\ out$

**PROBLEM**

- This ignores underlying economic activity
  - If we make a sale on credit, that doesn't add to profit
  - If we put an expense on credit, it doesn't lower profit

# Accrual accounting

- Records impact of transactions *as they occur*
- Required per IAS1, "Presentation of Financial Statements"
- Revenue recorded when it is *"more likely than not"*
- Expenses recorded as *incurred*
- Profit = Revenue - Expenses

## PROBLEM

- Profit may not be indicative of cashflows
    - This is a concern for lenders
        - If there's no cash, profit doesn't matter, as the company will go bankrupt

# Accrual transaction examples

| Cash Transactions | Noncash Transactions |
| --- | --- |
| Cash sale | Sales on account (A/R) |
| Borrowing money | Inventory purchases on account (A/P) |
| Paying expenses such as wages and rent | Expenses incurred but not yet paid |
| Receiving cash from interest earned | Depreciation expense |
| Paying off loans | Usage of prepaid expenses (rent, utilities, etc.) |
| Receiving cash from shares issued | Revenue from long-term projects with up-front cash collection |

# Periodicity

- Divides time into *artificial* segments to understand a firm's changes over time
  - Fiscal year, fiscal quarter
  - Citigroup: Jan 1 - Dec 31
  - Microsoft: Jul 1 - Jun 30
  - Walt Disney
    - 2024: Oct 1 - Sept 28
    - 2023: Oct 2 - Sept 30
    - 2022: Oct 3 - Oct 1
    - 2021: Oct 3 - Oct 2

Don't focus on this too much for this class

# Revenue recognition principal

- Recognize revenue in the **period** it was earned
  - This may not be when cash is received
- Goods revenue recorded when it is *more likely than not*
- Service revenue recorded at the percentage complete
  - If 50% of the work is finished, record 50% of the revenue
  - If 20% of the work is finished, record 20% of the revenue

This will lead to a lot of tricky accounting, but mostly around period ends

# Recognizing revenue

- Record revenue when:
  - Revenue can be measured *reliably*
  - Economic benefits are *more likely than not*
- For goods, you also need to:
  - Transfer any *significant risks* to buyer
    - If we are shipping [FOB destination], wait until received
    - If they handle shipping [FOB shipping point], wait until picked up for delivery
  - Have no continuing managerial involvement (*to an extent*)
  - Be able to *reliably* measure all costs incurred from the transaction
- For services, you also need to be able to *reliably* measure:
  - The stage of completion
  - The costs incurred to date and costs to finish

# Expense recognition

- Recognize expenses **only** when an asset is used up
  - Asset purchase ≠ expense
  - We can record partial usage
- Formally, expenses are recognized when:
  1. Obligations are incurred, such as when services have been received
  2. Obligations are offset against recognized revenues (matching principle)

  > Matching principal: Expenses are recorded in the same period as the related revenue

- E.g., even if we aren't given an electricity bill that neatly aligns with our fiscal year end, we still need to record our electricity usage

# Expense matching

# When should we record…

1. A sale we are shipping at our expense

2. A sale we are shipping at the buyer's expense

3. Revenue for a week long consulting project paid for up front

4. Electricity usage

5. Building usage (our building)

6. Sale of inventory for revenue

# Adjustments

# Why do we need to adjust?

- The matching principle
    - Everything needs to be matched at period end
- Do before balance sheet and income statement
    - Adjustments will go to the trial balance once we record them
    - We call this an *Adjusted trial balance*
- Why not do this continuously?
    - Too costly – some accounts continuously change
    - Investors only see period-end statements anyway

We'll only do this at period end

# What do we need to adjust?

- Adjustments needed to:
  - Asset values
    - Prepaid expenses
    - Inventory, supplies, etc.
    - Noncurrent assets
  - Liabilities
    - Payables we have yet to recognize
    - Unearned revenues
- Balanced by:
  - Revenues
  - Expenses

- **All** adjustments affect:
  - 1 B/S account
    - Assets
    - Liabilities
    - Equity excluding revenues/expenses
  - 1 I/S account
    - Revenue or expense
- **NEVER** affects cash

# Adjusting entry types

- *Deferral*
  - Adjust for prepaid expense (some used)
  - Adjust for unearned revenue (some may be earned)
- *Depreciation*
  - Some long term assets have been used up
- *Accrual*
  - Record an expense in advance

# Deferral

- Adjustment for cash paid or received in advance
  - Expense or revenue has yet to occur
  - We *defer* some of it to the next period

**Example: Deferred expense (previously recorded payment)**

| Date | Account | DR | CR |
|------|---------|----:|----:|
| 20YY.MM.DD | Rent expense | 1,000 | |
| | Prepaid rent | | 1,000 |
| *Prepaid rent of $2,000/month, 1/2 month passed* | | | |

**Example: Deferred revenue**

| Date | Account | DR | CR |
|------|---------|----:|----:|
| 20YY.MM.DD | Unearned revenue | 3,000 | |
| | Revenue | | 3,000 |
| *Received compensation for 100 consulting hours at $100/hour, 30 hours complete* | | | |

# Depreciation

- Adjustment for allocating the cost of *Property, Plant and Equipment* (PP&E) over its useful life
- Record to *accumulated depreciation*
- Asset's book value is asset account minus accumulated depreciation
- Depreciate to *salvage value*
    - What you expect to get when it is used up

**Example: Depreciation of equipment**

| Date | Account | DR | CR |
|------|---------|----|----|
| 20YY.MM.DD | Depreciation expense | 5,000 | |
| | Accumulated depreciation -- Equipment | | 5,000 |
| *Equipment depreciated by $5,000 during the year* | | | |

# Depreciation methods

- Straight line
  - Same amount each period
  - If $N$ periods, $S$ alvage value, $H$ istorical cost:
    - (per period) $\frac{H-S}{N}$
- Units of activity
  - Expense based on units produced
  - Good if capacity is known and tracked
- Declining balance
  - More depreciation early on, less later

# Accrual

- Accrued expense: debit expense, credit liability

**Example: Accruals: utilities expense and tax expense**

| Date | Account | DR | CR |
|---|---|---:|---:|
| 20YY.MM.DD | Utilities expense | 250 | |
| | Utilities payable | | 250 |
| *1/2 month of unpaid utilities expense, typical month is $500* | | | |
| 20YY.MM.DD | Tax expense | 20,000 | |
| | Tax payable | | 20,000 |
| *Expect to owe $20,000 in income tax for the period* | | | |

- Accrued revenue: debit asset, credit revenue

**Example: Accrued service revenue**

| Date | Account | DR | CR |
|---|---|---:|---:|
| 20YY.MM.DD | Accounts Receivable | 1,000 | |
| | Revenue | | 1,000 |
| *Performed 10% of $10,000 contract, with payment on completion* | | | |

# Overall effects

| Type | Asset (↑=DR) | Liability (↑=CR) | Expense (↑=DR) | Revenue (↑=CR) |
|---|---|---|---|---|
| Deferal: prepaid expense | ↓ | | ↑ | |
| Deferal: unearned revenue | | ↓ | | ↑ |
| Depreciation | ↓ | | ↑ | |
| Accrual: accrued expense | | ↑ | ↑ | |
| Accrual: accrued revenue | ↑ | | | ↑ |

# Adjusting entries

1. Return to the in class activity
2. 4 adjusting entries to add in
3. Do the three yellow tabs

# Closing the books

# Closing the books

- Reset all temporary accounts to **0**
  - All revenues
  - All expenses
  - Dividends
- Record a credit to temporary accounts with debit balances
  - Expenses, losses, dividends
- Record a debit to temporary accounts with credit balance
  - Revenues, gains
- Helps to track income through each period
  - Since all income-related accounts start each period with 0 balance

# Reset temporary accounts at period end

- We close the accounts into *retained earnings* directly
  - Or close into *income summary*, and then close that into retained earnings
- Debit Revenue, Credit Retained earnings
- Debit Retained earnings, Credit Expense
- Debit Retained earnings, Credit Dividends

**Example: Format for closing entry**

| Date | Account | DR | CR |
|------|---------|----|----|
| 20YY.MM.DD | Revenue | XX | |
| | Retained earnings (if decreased) | XX | |
| | Retained earnings (if increased) | | XX |
| | Expense 1 | | XX |
| | Expense 2 | | XX |
| | ... | | ... |
| | Dividends | | XX |
| *Closing entry* | | | |

Retained earnings is a plug to make this journal entry balance.
Include as a debit or a credit, but not both.

# Closing entry

1. Return to the in class activity

2. 1 closing entry to add in

3. Do the two red tabs

# End matter

# Wrap up

- For next week
  1. Recap the reading for this week
  2. Read the pages for next week
     - Capital Structure (Chapter 10)
     - Accounting Statements (Chapter 3, Part B)
  3. Homework to *turn in next week*
     - Available on eLearn
     - Submit on eLearn
  4. Practice on eLearn
     - Practice on journal entries
     - Automatic feedback provided
- Survey on the class session at rmc.link/101survey2

# Packages used for these slides

- kableExtra
- knitr
- revealjs