This Course

- It is my hope that this course has accomplished the following things:
  - Introduced you to some basic facts about long run economic growth, short term business cycles, economic policy, and the recent Great Recession
  - Given you relatively simple theoretical frameworks to think about these issues
  - Honed your quantitative, mathematical, and modeling skills
- Macroeconomics is a dynamic and ever-changing field
- We have more questions than we have answers
In part based on a recent speech by Janet Yellen, I identify the following areas where we know a lot less than we’d like:

1. The connection between the short run and the long run
2. A world with very low interest rates
3. Debt and fiscal imbalance
4. Heterogeneity and inequality
5. International linkages
The Short Run and the Long Run

- Do short run aggregate demand declines lead to long run reductions in supply?
- Possible reasons:
  - Less innovation due to tighter credit standards
  - Reductions in human capital from job loss – “hysteresis”
- Related to the “secular stagnation” theory of Summers: a persistent shortfall in demand exacerbated by the ZLB
- Also related to Robert Gordon’s growth pessimism
Long Run Growth Forecasts are Weak
A World with Low Interest Rates

- Short run nominal interest rates are close to zero all over the world; some central banks are experimenting with negative rates
- Do not want to repeat the Japanese experience
- Forecasts of future interest rates are low and falling
- Questions:
  - How do you conduct monetary policy to stabilize short run fluctuations in a world with such low interest rates?
  - What are the financial market consequences of low or negative interest rates?
  - Can lenders make money?
Interest Rate Forecasts Keep Falling

Forecast of Avg. Interest Rate over Next Ten Years

[Graph showing a downward trend in interest rates from 1992 to 2016]
And Inflation Expectations are Falling
Debt and Fiscal Imbalance

- In a world where Ricardian Equivalence holds and everyone lives forever, government debt is irrelevant
- What about the real world?
- The US and most western economies have high and rising debt
- Problematic when combined with demographic issues and unfunded social insurance programs
- Some research (e.g. Rienhart and Rogoff 2010) finds that countries with debt-gdp ratios over 90 percent grow significantly slower
  - Requires some combination of lower government spending (particularly on infrastructure) and higher tax rates, which may distort incentives
  - Raises spectre of default and may result in crippling default premiums (e.g. Greece)
US Debt: High and Rising
Heterogeneity and Inequality

- Most, though not all, macro models abstract from meaningful heterogeneity
- Obviously counterfactual, but does it matter for macroeconomic outcomes?
- Previously economists thought no, but increasingly yes, at least to an extent
- Different groups hit harder during recessions, different groups have higher or lower MPCs, etc. Distributional effects of policies may be important
- Inequality within rich countries is rising (although global inequality is falling). Lots of stories as to why
- What are the macroeconomic consequences of this inequality?
Rising Inequality

U.S. Income Share of Top 1% Households

Source Data:
CBO: "The Distribution of Household Income and Federal Taxes, 2011" Supplemental Data, Table 3
International Linkages

- The world is an ever more interconnected place
- US trade “openness” (exports plus imports divided by GDP) is still rather modest – about 25 percent
- But it has been growing
- Financial linkages are also critically important
- Shift of world GDP away from West to East
- As a percentage of global GDP, China has increased something like 10 percentage points in last 10-15 years along. Mind-boggling
US Openness

Percent


Source: University of Pennsylvania
World GDP Shares

% of world GDP from year 1700 to 2008 (line)

Countries
- China
- Japan
- United States
- India
- UK, France & Germany

Year of Year
1700 1750 1800 1850 1900 1950 2000

% of world GDP
0% 5% 10% 15% 20% 25% 30%