

**WELCOME TO  
ECMT 475  
ECONOMIC  
FORECASTING**

A copy of the Course Syllabus is available in  
Howdy or at the course website (linked in Canvas)

<http://people.tamu.edu/~cschulman/>

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**HOWDY!**

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**AGENDA FOR TODAY**

- Syllabus
- Overview of the Course

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### **SYLLABUS**

- Please read the Syllabus carefully
- Copy available in Howdy
- At the class website:  
<http://people.tamu.edu/~cschulman/>
- And linked on the class Canvas page

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### **THE CODE**

- ***“An Aggie does not lie, cheat, or steal or tolerate those who do.”***

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### **COURSE OVERVIEW**

- Forecasting is ubiquitous across almost all aspects of a modern economy
  - Macroeconomic forecasts for planning at the Country, State and local level
  - Firm level forecasts for sales (demand), earnings, inventory decisions, staffing requirements, etc.
  - And many others
- The focus of this course is on methods that are replicable and testable

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### FORECASTING? BRYAN-COLLEGE STATION WEATHER

<b>THURSDAY</b> 1/18	65°/32°	☁ Partly Cloudy	🌧 0%	72%	N 14 MPH	▼
<b>FRIDAY</b> 1/19	43°/23°	☁ Partly Cloudy	🌧 0%	52%	ENE 17 MPH	▼
<b>SATURDAY</b> 1/20	45°/32°	☀ Mostly Sunny	🌧 0%	39%	E 13 MPH	▼
<b>SUNDAY</b> 1/21	47°/42°	☁ Cloudy	🌧 20%	45%	SE 12 MPH	▼
<b>MONDAY</b> 1/22	63°/60°	☁ Showers	🌧 40%	61%	SE 13 MPH	▼
<b>TUESDAY</b> 1/23	68°/59°	☁ Showers	🌧 60%	82%	S 13 MPH	▼
<b>WEDNESDAY</b> 1/24	64°/48°	☁ Showers	🌧 50%	88%	N 11 MPH	▼
<b>THURSDAY</b> 1/25	54°/47°	☁ Showers	🌧 50%	77%	N 11 MPH	▼

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### MACROECONOMIC FORECASTS

- Atlanta Federal Reserve Bank GDP Now
  - <https://www.atlantafed.org/cqer/research/gdpnow>
- New York Federal Reserve Nowcast Report
  - <https://www.newyorkfed.org/research/policy/nowcast#/overview>
- Philadelphia Fed Survey of Professional Forecasters
  - <https://www.philadelphiafed.org/surveys-and-data/real-time-data-research/survey-of-professional-forecasters>
- Federal Open Market Committee Forecasts
  - <https://www.federalreserve.gov/monetarypolicy/fomccalendars.htm>

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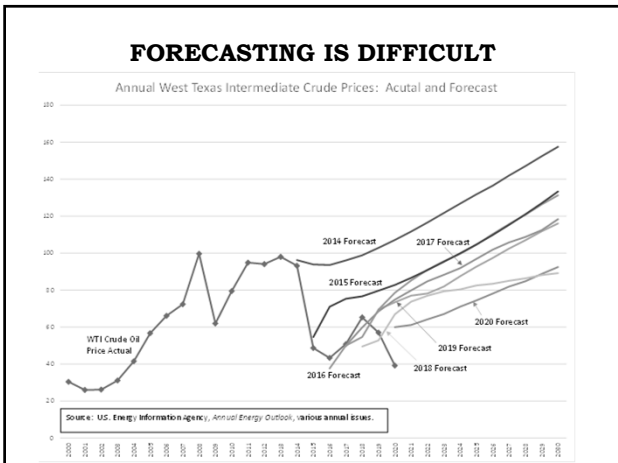
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### HOW TO FORECAST?

- Basic logic of forecasting is to take some observables (things we know) and predict a future value for a variable of interest (the target variable)
- Usually requires a model and economic theory can be a guide to model specification
- Are causal relationships necessary for forecasting?
  - Not necessarily
  - For many economic time-series, past observations are the best predictors of future observations
- Can we use anything?
  - NO: Spurious co-movements

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### WHAT CAN WE FORECAST

- Electricity Demand
- Timing of the next Halley's comet appearance
- Time of sunrise
- Stock prices and Stock Indexes
- Temperatures
- Exchange Rates
- Retail Sales: Aggregates or specific product categories

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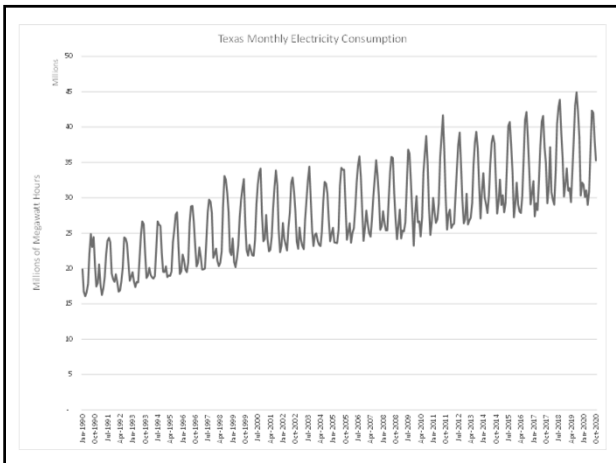
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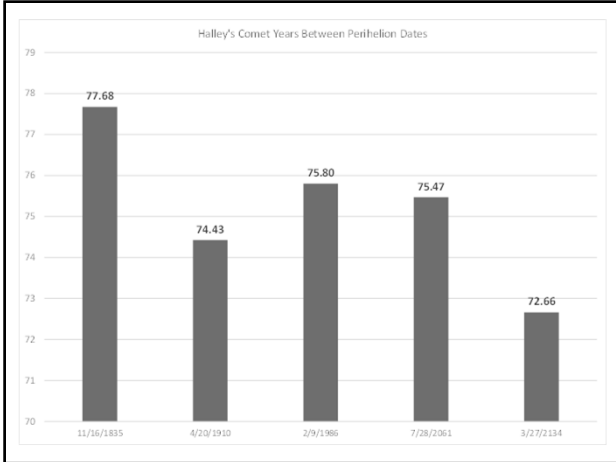
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### TIMING OF SUNRISE

- According to the U.S. National Oceanic and Atmospheric Administration, predictions of the time of sunrise are theoretically accurate to within 1 to 10 minutes, depending on the latitude of the location you are trying to predict and atmospheric conditions

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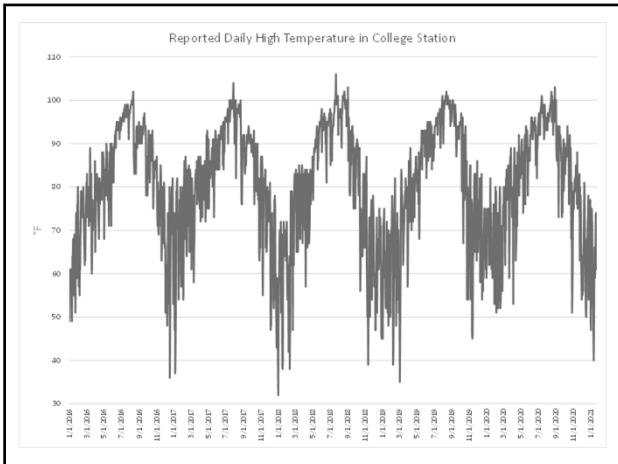
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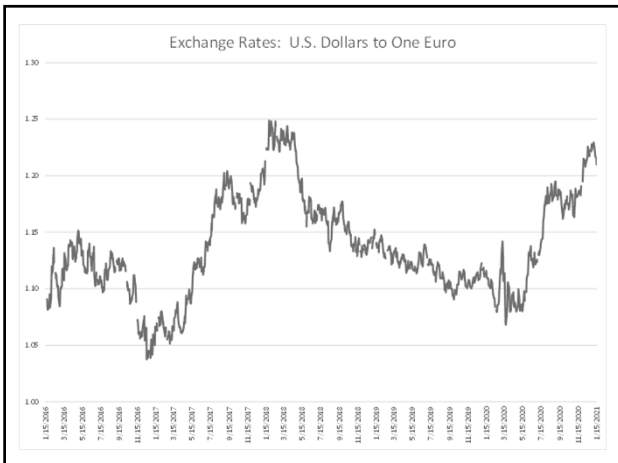
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### FACTORS AFFECTING FORECAST ABILITY

- Something is easier to forecast if:
  - we have a good understanding of the factors that contribute to it
  - there is lots of data available
  - the forecasts cannot affect the thing we are trying to forecast
  - there is relatively low natural/unexplainable random variation
  - the future is somewhat similar to the past

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### FORECASTING METHODS

- Qualitative or Judgmental Forecasts
  - Used when no data are available, or
  - Available data are not relevant to the forecasts
  - Discussed in Ch.4 of text, not covered in this course
- Quantitative Forecasts
  - Historical (numerical) data on the forecast object are available
  - Reasonable to assume that historical patterns will continue in the future
  - Note that this does not mean we are assuming that the environment is unchanging, rather that the way the environment is changing will continue

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### TIME SERIES DATA

- Any variable that is observed sequentially over time
- We will deal with time series that are observed at regular intervals
  - Hourly, daily, weekly, monthly, quarterly, annual
- Basic time series notation
  - Time series variable  $y$ , observed at time period  $t$  denoted  $y_t$
  - Where  $t \in \{1, 2, \dots, T\}$

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### QUANTITATIVE FORECAST MODELS

- Models using predictor variables
  - $y = f(X_1, X_2, \dots, X_k, error)$
  - Note that this type of model might require forecasts of the predictor variables in order to produce forecasts of  $y$
- Univariate models
  - $y_{t+1} = f(y_t, y_{t-1}, \dots, error)$
- Combined models
  - $y_{t+1} = f(y_t, X_1, X_2, \dots, error)$

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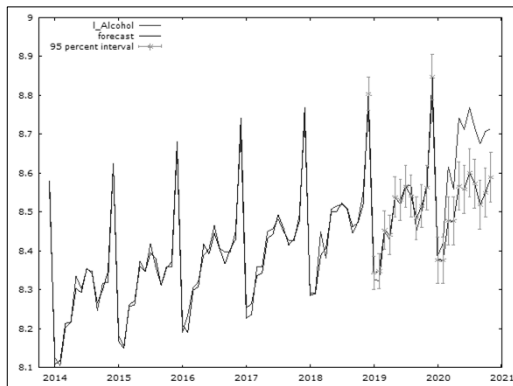
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### FORECAST OF ALCOHOL SALES




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### SOME FAMOUSLY BAD FORECASTS

- "640K [of computer memory] ought to be enough for anybody." -- Bill Gates, 1981
- "I think there is a world market for maybe five computers." --Thomas Watson, chairman of IBM, 1943
- "I have traveled the length and breadth of this country and talked with the best people, and I can assure you that data processing is a fad that won't last out the year." --The editor in charge of business books for Prentice Hall, 1957
- "There is no reason anyone would want a computer in their home." --Ken Olson, president, chairman and founder of Digital Equipment Corp., 1977
- "The concept is interesting and well-formed, but in order to earn better than a 'C,' the idea must be feasible." --A Yale University management professor in response to Fred Smith's paper proposing reliable overnight delivery service. (Smith went on to found Federal Express Corp.)

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**SOME FAMOUSLY BAD FORECASTS**

- "We don't like their sound, and guitar music is on the way out." --Decca Recording Co. rejecting the Beatles, 1962.
- "So we went to Atari and said, 'Hey, we've got this amazing thing, even built with some of your parts, and what do you think about funding us? Or we' ll give it to you. We just want to do it. Pay our salary, we'll come work for you.' And they said, 'No.' So then we went to Hewlett-Packard, and they said, 'Hey, we don't need you. You haven't got through college yet.'" --Apple Computer Inc. founder Steve Jobs on attempts to get Atari and H-P interested in his and Steve Wozniak's personal computer.
- "Drill for oil? You mean drill into the ground to try and find oil? You're crazy." -- Drillers who Edwin L. Drake tried to enlist to his project to drill for oil in 1859.
- "Airplanes are interesting toys but of no military value." --Marshall Ferdinand Foch, Professor of Strategy, Ecole Superieure de Guerre.
- "Everything that can be invented has been invented." --Charles H. Duell, Commissioner, U.S. Office of Patents, 1899.
- "Stocks have reached what looks like a permanently high plateau." --Irving Fisher, Professor of Economics, Yale University, 1929.
- Climate:
  - <https://cei.org/blog/wrong-again-50-years-of-failed-eco-pocalyptic-predictions/>

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