ANSWER KEY – Midterm 2, Econ 201, Spring 2015, Witte

Grade	Range		
A	78-102	Exam GPA	2.7
A-	75-77	Median	62
B+	72-74	Mean	61
B	63-71	St. Dev.	16.6
B-	60-62	Highs	96, 91, 90, 89, 89
C+	56-59	25^{th} percentile	74
C	48-55	75^{th} percentile	51
C-	42-47		
D	30-41		
F	00-29		

Dear Class,

Very challenging test, but people who have been working hard and coming to our office hours had some impressive improvements, and we look forward to more of you making the big move for the final. If you did better this time relative to midterm 1, and stay improved for the final, then we will drop your score on midterm 1 and scale up your points on the second midterm and final to replace its weight.

For the final exam, it will be cumulative and two hours long. A strong score on it will impress us on the margin for grades.

For the final, you may bring an 8.5x11 inch note sheet with whatever you want on the front and back (go ahead, put graphs, miniaturized photos, whatever). We hope this is a useful study tool for you and helps you stay calm and perform your best on the final.

We look forward to seeing you in office hours during reading and finals week.

Mark

Second Midterm

Economics 201
Spring Quarter 2015

Mark Witte
Northwestern University

Do not turn this exam over or begin working until you are told to.
You should keep the test questions.

Only hand in the answer sheet.

We will post scores and grades on Canvas as soon as we can.

Put your name on the answer sheet and circle your T.A. section! Hand in only the answer sheet. The test is out of 100 points. Each multiple-choice question is worth 4 points and has a single best answer. There is no guessing penalty so answer all the questions. The essay is worth 10 points. The graphing/short answer problems are worth 5 points each for a total of 30. Please be thorough but concise. Verbose answers will not help you. Handing the exam in on time (by **10:50**) will gain you a **bonus of 4 points**. Handing the exam in **after 10:54** will **cost you five points** with the penalty rising after that. This exam covers all readings, lectures, sections, and notes from April 13 through Monday, May 18. This includes Hubbard & O'Brien chapters 6, 9-16, Buchholz IX, X, Gordon, Gordon, Klenow, Surowieki, Radford.

Economics 201 Mark Witte
Second Midterm Spring 2015

1. When we say that wages are "sticky", we mean that….
A. ...once they start rising or falling, they are just going to stick to that path of change.
B. ...in the short run, they may possibly be set by contracts or just inertia.
C. ...in the long run, they won't matter because the level of GDP sticks to potential.
D. ...it's hard for Aggregate Demand to change in the short run because wages won't change.
E. ...low levels of unemployment will cause SRAS to shift to the right, but only after a lag.

2. As Keynes wrote in his *General Theory*….
A. ...greater saving by households would increase the supply of loanable funds, reducing the interest rate, leading to a matching rise in investment spending.
B. ...the economy was prone toward inflation of the price level, and monetary policy was the best cure.
C. ...the economy was prone toward recessions, but fiscal policy would be the most reliable cure.
D. ....the marginal propensity to consume was the ratio of household spending to household income (after taxes were deducted).
E. ...if the economy were $100 million below potential, then this problem could be easily fixed by raising government spending by $100 million.

3. The Federal Budget can serve as an "Automatic Stabilizer" because….
A. ...when the economy is very strong, we can raise tax rates to slow down consumption 0spending.
B. ...when the economy is very strong, fewer people are on income support programs like food stamps, and more people owe taxes.
C. ...in a recession, government can choose to build more roads to keep unemployment from falling too low.
D. ...in a weak economy, there is less buying and selling, so money is in less in demand, reducing interest rates, which is good for investment demand.
E. ...a balanced government budget is good for the economy, regardless of the business cycle.

4. Which of the following best defines the monetary base?
A. Checking accounts (demand deposits) + all currency
B. Time deposits + M1
C. Bank reserves + currency in circulation outside of banks
D. Bank holdings of currency in their vaults plus bank deposits at the Fed.
E. Excess reserves + Required reserves (for banks)

Problems 5 to 8 use this table and these abbreviations. Consumption = C, Taxes = T, Investment Demand = I_D, Disposable Income = Y-T, Govt. Purchases of Goods and Services = G Aggregate Expenditure = AE, the MPC is constant, Foreign trade is zero. In case you care, autonomous consumption = 90.

AS = Y	T	Y-T	C	I_D	G	AE	d(Invt.)
$2,000	$400		$1,530	$250	$300		
$2,400	$400		$1,890	$250	$300		
$2,800	$400			$250	$300		
$3,200	$400			$250	$300		
$3,600	$400			$250	$300		
$4,000	$400			$250	$300		
$4,400	$400			$250	$300		

5. Based on the table, what is equilibrium aggregate expenditure?

A. $2,400 B. $2,800 C. $3,200 D. $3,600 E. $4,000

6. How much would investment demand need to rise to increase equilibrium income by $800? (Chose the closest answer.)

A. $40 B. $80 C. $90 D. $800 E. $890

7. How much would we need to change taxes to reduce equilibrium by $200? (Chose the closest answer.)

A. -$22 B. +$20 C. -$20 D. +$22 E. +$220

8. Government gives a tax cut of $100. People decide to save more, reducing autonomous consumption by $10. Investment demand rises by $40. How much does all this change equilibrium income? (Chose the closest answer.)

A. +$1,400 B. +$1,200 C. +$1,350 D. -$400 E. +400

9. How did Kublai Khan's version of money differ from the form used in Radford's P.O.W. camp?

A. Khan's was immune from inflation.
B. Khan's was composed of silver coins, something of lasting value.
C. Khan's was backed by gold.
D. Khan's was less flexible to respond to shocks to the economy.
E. Khan's was fiat, while Radford's was based on a commodity.

10. Compute the "I Give It All" Consumer Price Index for 2015 using 2013 as a base year. Go with the closest answer.

	P_{2013}	Q_{2013}	P_{2014}	Q_{2014}	P_{2015}	Q_{2015}
House in Budapest	$200	1	$220	1	$250	1
Hidden treasure chests	$80	3	$90	4	$100	4
Golden grand pianos	$100	2	$150	3	$80	3
Beautiful Castillos	$10	4	$15	5	$20	2

("You-ooo, you-ooo, I give it all!")

A. 137 B. 116 C. 124 D. 111 E. 108

11. I consult the Oracle of Delphi and she assures me that the annual inflation rate in the future will be 1%. Further, she says that I could earn a real rate of return of 3% per year by making a loan. That's all well and good, but what I asked her was, **"How much more is Asset A worth than Asset B?"** Asset A makes a one-time payment of $400 two years from now. Asset B will pay $10 per year forever, starting next year. (Go with the closest answer.)

A. $150 B. $80 C. $200 D. $100 E. $120

12. What is **equilibrium GDP** in this economy? Imports are **$20**, Government Spending on Goods & Services is **$85**. Investment demand is **$200**. Taxes are **$100**. Exports are **$30**. Autonomous consumption is **$25**. When after-tax income is $**900**, consumption is $**565**. A rise in after-tax income of $**300** raises consumption spending by **$180**.

A. $650 B. $800 C. $600 D. $595 E. $687

13. In the previous problem, how much are total leakages when GDP is $1,000?

A. $140 B. $315 C. $120 D. $465 E. $455

14. **How much does this bank have in Net Worth?** It has **$400** in savings deposits from its customers. There is **$60** on deposit at the Federal Reserve. The bank had given out **$600** in loans, has **$50** in accounts payable, **$260** of physical capital, borrowings of **$250** from the Fed and other banks, **$40** in accounts receivable, required reserves are **$10**, excess reserves are **$90**, and the bank holds **$250** of government bonds. (**$rr_{DD} = 0.02$, $rr_{TD} = 0$**) Note: Some things are missing from this balance sheet and you will have to infer them.

A. $510 B. $100 C. $50 D. $330 E. $260

15. For the bank in the previous problem, I deposit $100 in cash into my checking account and the Fed buys $200 in bonds from the bank. If all the excess reserves are repeatedly lent out and all go into creating checking accounts, how much will this increase M2? Chose the closest answer. (**$rr_{DD} = 0.02$, $rr_{TD} = 0$**)

A. $18,800 B. $19,100 C. $19,200 D. $19,400 E. $19,500

Economics 201 NAME _____ Mark Witte

Second Midterm E-mail _____ Spring 2015

Circle your TA. Tuesdays: Susan or Brian
Thursdays: Bela or Brian

Hand in only the answer sheet. Each multiple choice question is worth 4 points and has a single best answer. There is no guessing penalty so answer all the questions. Please be thorough but concise; verbose answers will not help you. Handing the exam in on time (by **10:50**) will gain you a **bonus of 4 points**. Handing the exam in **after 10:54** will **cost you five points** with the penalty rising after that.

WRITE YOUR MULTIPLE CHOICE ANSWERS IN CAPITAL LETTERS! If we can't read it, it's wrong.

1.		**4.**		**7.**		**10.**		**13.**		**MC*4**	
2.		**5.**		**8.**		**11.**		**14.**		**Bonus**	
3.		**6.**		**9.**		**12.**		**15.**		**Written**	
										Total	

Essay (10 Points) Why do banks engage in leverage? What implications does this have for the soundness and stability of the financial system? Briefly explain.

Short Problems (5 points each, 30 points total) On graphs, carefully label all axes and all points of interest.

1. Draw a Price Index-RGDP graph where AD intersects SRAS to the right of LRAS. Label this point A. Show the effect of the self-correcting mechanism. Label this point B.		2. Draw a 45-degree, income versus expenditure diagram. Pick a point were inventories are rising (Label it A). Show how a change in government spending could turn A into an equilibrium.
3. In the above problem, what could we do with taxes to fix this gap? Draw this clearly and label the new equilibrium C.		4. Start with a money market in equilibrium with money supply of $200 and an interest rate of 6%. Show the effect of an increase in the price level.
5. What effect might high government budget deficits have on long run growth? Briefly explain.		6. Starting from point A, with capital/worker on the horizontal and RGDP/worker on the vertical, show the effect of an increase in capital (point B). Show the effect of an increase in productivity (point C).

Second Midterm
KEY

Economics 201
Spring Quarter 2015

Mark Witte
Northwestern University

MULTIPLE CHOICE ANSWERS:

1.	B	4.	C	7.	D	10.	B	13.	E
2.	C	5.	B	8.	B	11.	E	14.	C
3.	B	6.	B	9.	E	12.	A	15.	D

Problems 5 to 8 use this table and these abbreviations. Consumption = C, Taxes = T, Investment Demand = I_D, Disposable Income = Y-T, Govt. Purchases of Goods and Services = G Aggregate Expenditure = AE, the MPC is constant, Foreign trade is zero. In case you care, autonomous consumption = 90.

AS = Y	T	Y-T	C	I_D	G	AE	d(Invt.)
$2,000	400	*1,600*	1,530	250	300	*2080*	*-80*
$2,400	400	*2,000*	1,890	250	300	*2440*	*-40*
$2,800	400	*2,400*	*2,250*	250	300	*2800*	*0*
$3,200	400	*2,800*	*2,610*	250	300	*3160*	*40*
$3,600	400	*3,200*	*2,970*	250	300	*3520*	*80*
$4,000	400	*3,600*	*3,330*	250	300	*3880*	*120*
$4,400	400	*4,000*	*3,690*	250	300	*4240*	*160*

MPC = dC/d(Y-T) = 360/400 = 0.9

5. Based on the table, what is equilibrium aggregate expenditure?

A. $2,400 B. $2,800 C. $3,200 D. $3,600 E. $4,000

6. How much would investment demand need to rise to increase equilibrium income by $800? (Chose the closest 9997answer.)

A. $40 B. $80 C. $90 D. $800 E. $890

$dAE = \$800 = 1/(1\text{-}MPC)*dI_D = 1/(1\text{-}0.9)*dI_D = 10*\$80$

7. How much would we need to change taxes to reduce equilibrium by $200? (Chose the closest answer.)

A. -$22 B. +$20 C. -$20 D. +$22 E. +$220

dAE = -$200 = -MPC/(1-MPC)*dT = -0.9/(1-0.9)*dT = -9*dT. dT = -$200/(-9) = +$22.2

8. Government gives a tax cut of $100. People decide to save more, reducing autonomous consumption by $10. Investment demand rises by $40. How much does all this change equilibrium income? (Chose the closest answer.)

A. +$1,400 B. +$1,200 C. +$1,350 D. -$400 E. +400

dAE = -0.9/(1-0.9)*(-$100) = $900. dAE = 1/(1-0.9)*(-$10 + $40) = $300 Total = $900 + $300 = +$1,200

10. Compute the "I Give It All" Consumer Price Index for 2015 using 2013 as a base year. Go with the closest 79answer.

	P_{2013}	Q_{2013}	P_{2014}	Q_{2014}	P_{2015}	Q_{2015}
House in Budapest	$200	1	$220	1	$250	1
Hidden treasure chests	$80	3	$90	4	$100	4
Golden grand pianos	$100	2	$150	3	$80	3
Beautiful Castillos	$10	4	$15	5	$20	2

("You-ooo, you-ooo, I give it all!")

A. 137 B. 116 C. 124 D. 111 E. 108

ANSWER:

Cost of 2013 bundle in 2013 prices = $200*1 + $80*3 + $100*2 + $10*4 = $200 + $240 + $200 + $40 = $680

Cost of 2013 bundle in 2015 prices = $250*1 + $100*3 + $80*2 + $20*4 = $250 + $300 + $160 + $80 = $790

Price index for 2015 with 2013 base = ($790/$680)*100 = 116

11. I consult the Oracle of Delphi and she assures me that the annual inflation rate in the future will be 1%. Further, she says that I could earn a real rate of return of 3% per year by making a loan. That's all well and good, but what I asked her was, **"How much more is Asset A worth than Asset B?"** Asset A makes a one-time payment of $400 two years from now. Asset B will pay $10 per year forever, starting next year. (Go with the closest answer.)

A. $150 B. $80 C. $200 D. $100 E. $120

ANSWER: Nominal interest rate = Real interest rate + Expected Inflation = 3% + 1% = 4%

PV(Asset A) = $400/$(1.04)^2$ = $369.8

PV(Asset B) = $10/.04 = $250

PV(Asset A) - PV(Asset B) = $369.8 - $250 = $119.8

12. What is **equilibrium GDP** in this economy? Imports are **$20**, Government Spending on Goods & Services is **$85**. Investment demand is **$200**. Taxes are **$100**. Exports are **$30**. Autonomous consumption is **$25**. When after-tax income is $**900**, consumption is $**565**. A rise in after-tax income of $**300** raises consumption spending by **$180**.

A. $650 B. $800 C. $600 D. $595 E. $687

MPC = dC/d(Y-T) = $180/$300 = 0.6

AE = a + MPC*(Y-T) + I_D + G + X-Im = 25 + 0.6*(Y-100) + 200 + 85 + 30-20 = 260 + 0.6*Y

Y = 260/(1-0.6) = $650

13. In the previous problem, how much are total leakages when GDP is $1,000?

A. $140 B. $315 C. $120 D. $465 E. $455

Savings = Y-T - C = $1,000 - 100 - (25 - 0.6*(1,000-100)) = $335

Leakages = S + T + Im = $335 + 100 + 20 = $455

14. **How much does this bank have in Net Worth?** It has **$400** in savings deposits from its customers. There is **$60** on deposit at the Federal Reserve. The bank had given out **$600** in loans, has **$50** in accounts payable, **$260** of physical capital, borrowings of **$250** from the Fed and other banks, **$40** in accounts receivable, required reserves are **$10**, excess reserves are **$90**, and the bank holds **$250** of government bonds. (**$rr_{DD} = 0.02$, $rr_{TD} = 0$**) Note: Some things are missing from this balance sheet and you will have to infer them.

A. $510 B. $100 C. $50 D. $330 E. $260

ANSWER: The problem doesn't give us Vault Cash, DD, or Net Worth. Since Total Reserves are RR + ER = $10 + $90 = $100. However, Total Reserves are made up of Vault Cash + Fed Deposits. TR = Vault Cast + $60 = $100, so Vault Cash = $40. Required Reserves = $10, which is also 2% of DD, so DD = $10/.02 = $500.
Total Assets = 1,250. Liabilities (not including NW) = $1,200. Net worth = $50.

Assets			Liabilities
Vault Cash	?	?	DD
Fed Dep	60	400	TD
Loans	600	250	Borrowing
Bonds	250	50	Accts Pay
Accts. Rec	40		
Phys Cap	260	?	NW
TR	RR	ER	
?	10	90	

15. For the bank in the previous problem, I deposit $100 in cash into my checking account and the Fed buys $200 in bonds from the bank. If all the excess reserves are repeatedly lent out and all go into creating checking accounts, how much will this increase M2? Chose the closest answer. (**$rr_{DD} = 0.02$, $rr_{TD} = 0$**)

A. $18,800 B. $19,100 C. $19,200 D. $19,400 E. $19,500

ANSWER: Bank starts with $90 in ER. $100 cash deposit to DD raises required reserves by $2, leaving $98 for ER. The Fed purchase adds a further $200 of ER. Total ER = $90 + $98 + $200 = $388. $\Delta DD = (1/rr_{DD})*ER = (1/.02)*\$388 = \$19{,}400$

Assets			Liabilities
Vault Cash	40	500	DD
Fed Dep	150	400	TD
Loans	600	250	Borrowing
Bonds	250	50	Accts Pay
Accts. Rec	40		
Phys Cap	260		NW
	1340	140	
TR	RR	ER	
190	100	90	

Essay (10 Points) Why do banks engage in leverage? What implications does this have for the soundness and stability of the financial system? Briefly explain.
ANSWER: Leverage refers to borrowing liabilities to increase holdings of assets, for a given amount of net worth. As long as assets pay more than liabilities cost, then more leverage means more profit for a given amount of bank capital. However, the more assets relative to capital, the smaller a change in asset values it will take to make the bank insolvent and pass losses on to other institutions and provoking runs from uninsured liability holders, thus destabilizing the system.

Short Problems (5 points each, 30 points total) On graphs, carefully label all axes and all points of interest.

1. Draw a Price Index-RGDP graph where AD intersects SRAS to the right of LRAS. Label this point A. Show the effect of the self-correcting mechanism. Label this point B.		2. Draw a 45-degree, income versus expenditure diagram. Pick a point were inventories are rising (Label it A). Show how a change in government spending could turn A into an equilibrium.
ANSWER: SRAS shifts left.		ANSWER: AE shifts upward.
3. In the above problem, what could we do with taxes to fix this gap? Draw this clearly and label the new equilibrium C.		4. Start with a money market in equilibrium with money supply of $200 and an interest rate of 6%. Show the effect of an increase in the price level.
ANSWER: AD shifts left.		Money demand shifts right, driving up i.
5. What effect might high government budget deficits have on long run growth? Briefly explain.		6. Starting from point A, with capital/worker on the horizontal and RGDP/worker on the vertical, show the effect of an increase in capital (point B). Show the effect of an increase in productivity (point C).
ANSWER: Large government budget deficits might drive up interest rates, reducing investment demand, and so slowing growth of the capital stock.		ANSWER: Krugman-Wells figure 9-5.