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HYfa`Hk c`#`&\$%



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7ci fgY`Cj Yfj JYk

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D\cbY.`f\$&L`- ' ,) `(,) *

9a Uj`. [gUa 4 i bgk "YXi "Ui](#)

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H\Y`GWcc`cZhY`5fng`UbX`A YX]U`k ci `X``_Y`hc`F YgdYWz`m5W_bck`YX[Y`hY`HfUX]hcbU`7i`ghcX]Ubgz`hY`6YXY[U`fP`Ybg]b[hcb`WUa`di`gkz; UX][U`f7`]mUbX`5fhi`8Yg][b`7 Ua`di`gYgk`UbX`hY`B [i`bbUk`U`dYcd`Y`f5i`ghU]Ub`8YZ`bWV : cfW`5WUXYa`mi]b`7 UbVYffUk`cZhY`UbXg`k`YfY`YUW`WUa`di`g`cZI`BGK`]g`cWUHYX"

5ggYgga Ybh

5`UggYgga YbhHug_g`k]`VY`X]gW ggYX`]b`XYHJ`]b`h`Y`Z]fgia`YYH]b[`Zcf`h`jg`Wci`fgY`"

H\Y`<`Ufj`UfX`fbUa`Yz`XUH`E`cf`5D5`fYZ`fYbW]b[`gmgh`Ya`g`lci`X`VY`i`gYX`Zcf`U`Ugg][`ba`Ybh`gi`Va`]h`X`]b`h`jg`Wci`fgY`"

7`ca`d`cgYfg`!`d`YUgY`bc`h`h`Y`[`i`]XY`]bYg`Zcf`Wca`d`cg]h`cb`d`cg`h`X`cb`A`cc`X`Y`UbX`Wcbgi`h`k`]h`>`c`l`b`DYH`fgcb`UVci`hdf`j`UH`Y`ggcbg`"

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D`Y`Y`f`f`Y`j`]`Y`k` `	%`\$`i`		%`z`&`Z`
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GHUfhXUH`.

8YHJ]`g.`F`Ye`i`]f`Y`g`h`Y`d`f`Y`d`U`f`U`h`]`c`b`c`Z`U`d`Y`f`Z`c`f`a`U`b`W`Y`j`Y`b`h`U`h`l`B`G`K` `c`f`]b`U`b`c`h`Y`f`U`d`d`f`c`j`Y`X`j`Y`b`i`Y`" `H`Y` `d`Y`f`Z`c`f`a`U`b`W` `a`U`m`V`Y`Y`]`h`Y`f`g`c`c`c`f`W`c`U`V`c`f`U`h`j`Y`"5`d`d`f`c`l`]a`U`h`m`&`\$`!`&`)` `a`]b`i`h`Y`g`"H`Y`]g`]g`h`Y`Z`]b`U` `UggYgga YbhHug_`5`k`f`]h`Y`b`f`Y`d`c`f`h`c`b`h`Y`d`Y`f`Z`c`f`a`U`b`W` `c`f`W`c`a`d`c`g`]h`c`b`f`]Z`U`d`d`]W`U`V`Y`E`k`]`V`Y`d`f`c`j`]X`Y`X`"

5ggYgga Ybh&.`D`Y`Y`f`f`Y`j`]`Y`k`

GHUfhXUH`.

8YHJ]`g.`Gh`XYbh`g`k`]`U`h`Y`b`X`U`f`Y`Y`U`f`g`U`U`f`f`U`b`[`Y`X`V`m`d`Y`Y`f`g`]b`d`f`Y`d`U`f`U`h`]`c`b`Z`c`f`h`Y`[`f`c`i`d`d`f`c`Y`W`h`d`f`Y`g`Y`b`h`U`h`]`c`b`d`Y`f`Z`c`f`a`U`b`W`U`b`X`k`f`]h`Y`U`d`Y`Y`f`f`Y`j`]`Y`k`f`Y`d`c`f`h`c`Z` \$\$`k`c`f`X`g`c`b`h`Y`f`Y`Y`U`f`g`U`" `H`Y`]g`Y`I`Y`f`W`]g`Y`k`]`V`Y`U`h`Y`Z`f`h`Y`f`]b`h`Y`U`W`]c`b`V`Y`h`Y`Y`b`d`Y`Y`f`g`U`b`X`U`c`k`g`Y`U`W`g`h`XYbh`h`c`f`Y`Z`Y`W`h`c`b`h`Y`d`f`c`W`g`g`c`Z`W`c`U`V`c`f`U`h`]c`b`" `K`f`]h`Y`b`Z`Y`X`V`U`W`_`Z`c`a`h`Y`U`W`X`Y`f`"

5ggYgga Ybh'`.;`f`c`i`d`d`f`c`Y`W`h`

GHUfhXUH`.

8YHJ]`g.`5`d`Y`f`Z`c`f`a`U`b`W`d`f`c`Y`W`h`f`Y`e`i`]f`]b[`W`c`U`V`c`f`U`h`]c`b`k`]h`U`h`Y`U`g`h`c`b`Y`c`h`Y`f`a`Y`a`V`Y`f`c`Z`h`Y`A`i`g`]W`7`f`Y`U`h`j`Y`D`f`U`W`]W`W`W`c`f`h`g`i`W`U`g`U`d`Y`f`Z`c`f`a`Y`f`#`W`c`a`d`c`g`Y`f`W`c`U`V`c`f`U`h`]c`b`z`W`U`a`V`Y`f`a`i`g`]W`U`W`W`c`a`d`U`b`]a`Y`b`h`z`h`U`b`g`W`]d`h`]c`b`U`b`X`U`f`f`U`b`[`Y`a`Y`b`h`" `H`Y`]g`k`]`V`Y`d`f`Y`g`Y`b`h`X`U`g`U`d`Y`f`Z`c`f`a`U`b`W`]b`W`U`g`"5`d`d`f`c`l`]a`U`h`m`)` `a`]b`i`h`Y`g`"H`Y`d`Y`f`Z`c`f`a`U`b`W`k`]`V`Y`UggYggYX`U`b`X`X`]g`W`ggYX`]b`W`U`g`U`h`h`Y`h`j`a`Y`c`Z`d`f`Y`g`Y`b`h`U`h`]c`b`"

\$VVHVVP HQW 5HSRUW

GHUfhXUHy.

8YHJ]g. ZRUGV 5HTXLUHV GRFXPHQWDWLRQ DQG FULWLFDO UHIOH
GHYHORS LQJ DQG UHDOLVLQJ D FUHDWLYH SURMHFW LQ D SHUIRU
LP SDFWHG RQ WKH LQGLYLGXDO V DUWLVWLF YDOXH V DVVXPSWL
FROODERUDWLYH DQG RUJDQLJDWLRQDO VNLOOV :ULWWHQ IHHGE

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Course Schedule

[View class timetable](#)

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I BGK `@]VfUfml

6Ybgcbž6fi W`9`]gž&\$ \$" ;_ bđah[eSf[a` aX_ge[US^V[S`aYgWž 7Ua Vf]X[Y`I b]j Yfg]mDfYgg"

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: YYXVUW'Zca 'ghi XYbhg'\Ug'VYYb'[UhYfYX'h'fci [\ '7 5H9=UbX'hY'fYgi 'hg'W'cbg]XYfYX'Vm'hY'7ci fgY
7cbj Ybcf'UbX'chYf'a i g]WghUZZ]b'cfXYf'hc'a U_Y'W'Ub[Yg'hc'Yb\UbW'hY'ghi XYbh'YUfb]b['YI dYf]YbW'"
: cfa U'_k7j bW'U'W UYj U'i Uh]cbg'k]''VY'i gYX'Uh'hY'YbX'cZGYa Yghf'Vi high XYbhg'UfY'a cghk Y'W'a Y'hc
X]gW'gg'Ubma UhYf'fY'UhYX'hc'h]g'W'ci fgY'k]h'hY'7ci fgY'7cbj Ybcf'VmYa U]'cf']b'dYfgcb'Uh'Ubmi]a Y
Xi f]b['hY'gYgg]cb"

Gi Va]gg]cb`cZ5ggYgga YbhHUg_g

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Hi fb]hb`Gi Va]gg]cb

zmc i`YbWci bhYf`U`dfcV`Ya`k` \Yb`U`H`Ya` dh]b[`hc`gi Va]hmc i`f`Ugg][ba YbhHfci [\`Hi fb]hbzd`YUgY
H`Y`d`l`cb`Y`9I`H`f`b`U`Gi` ddcfhcb`-` ,)`"``"``%cf`Ya`U]`H`Ya` `cb`YI`H`f`b`U`H`f`gi` ddcfh4` i` b`gk`"YXi`"Ui`"Gi` ddcfh
`l`ci`fg`UfY` , .\$\$Ua` -`-%\$. \$\$da` `cb`k`YY`XUmg`UbX`-` .\$\$Ua` -`)` .\$\$da` `cb`k`YY`YbXg`fI`*)` `XUmg`U`m`Y`UfL`" zmc i
UfY`i` bUV`Y`hc`gi Va]hmc i`f`Ugg][ba YbhXi`Y`hc`U`ZU`i`hik`]H`Hi`fb]hb`mci` `a`UmUdd`miZc`f`Ub`YI`H`f`bg]cbz`Vi`hmc i
a`i`ghf`Y`H]b`mci`f`h]W`Y`hbi`a`VYf`Z`ca` `9I`H`f`b`U`Gi` ddcfhfU`cb[`k`]H`Ubmc`H`Y`f`f`Y`j`UbhXcW`a`Yb`hg`L`hc
]bW`i`XY`Ug`Y`j`]XYbW`hc`gi` ddcfhmc i`f`YI`H`f`bg]cb`Udd`]W]h]cb" zmc i`Ya`U]`9I`H`f`b`U`Gi` ddcfhmc i`k`]`
Ui`hc`a`U`h]W]m`f`Y`W]j`Y`U`h]W`Y`hbi`a`VYf`z`Vi`h]Zmc i`H`Y`d`l`cb`Y`mci`k`]`b`Y`Y`X`hc`gd`Y`W]Z]W]m`Ug`_`Zc`f`cb`Y`"
Hi`fb]hb`U`gc`d`fcj`]XYg`i`d`XU`H`g`i`cb`H`Y`j`f`gm`gh`Ya` `gh`U`h`g`i`cb`Hk`]H`Y`f`"

; YbYfU`mz`UggYgga YbhHUg_g`a`i`gh`V`Y`gi`Va`]H`Y`X`Y`Y`W`f`cb]W]m`j`]U`Y`]H`Y`f`Hi`fb]hb`cf`U`A`cc`X`Y`
Ugg][ba Ybh`H`b`]bg`H`b`W`g`k` \Y`f`Y`H`L`g`]g`b`ch`id`c`gg]V`Y`Z`]h`k`]`V`Y`g`H`Y`X`i`cb`mci`f`W`ci`fg`Y`g`A`cc`X`Y`g`]H`Y`k`]H`
U`H`f`b`U`h]`Y`gi`Va`]gg]cb`XY`H]`g`"

: cf`]b`Z`c`fa`U`h]cb`cb` \ck`hc`gi Va]hUgg][ba Ybh`g`cb`]b`Y`j`]U`A`cc`X`Y` . \`H`td`g`#`gh`XYb`h`i`b`gk`"YXi`"Ui`#`ack`!
gi Va]hUgg][ba Ybh`a`cc`X`Y`

5 WUXYa]W<c bYghmUbX`D`U[]Uf]ga

D`U[]Uf]ga `]g`i g]b[`hY`k cfXg`cf]XYUg`cZchYfg`UbX`dfYgYbh]b[`hYa `Ug`mci f`ck b" `hWUb`hU`Y`a Ubm
Zcfa gZ`Zca `XY`]VYfUHY`WXYU]b[`hc`UWV]XYbhU`mW`dm]b[`Zca `U`gci fW`k]h`ci hUW_bck `YX[Ya Ybh`

I BGK `[fci dg`d`U[]Uf]ga `]bhc`hY`Zc`ck]b[`WUHY[cf]Yg.

7 cdm]b[.`i g]b[`hY`gUa Y`cf`j Yfmg]a]Uf`k cfXg`hc`hY`cf][]bU`hYI hcf`]XYU`k]h`ci hUW_bck `YX[]b[`hY`
gci fW`cf`i g]b[`ei chU]cb`a Uf_g" `H\]g`U`gc`Udd`]Yg`hc`]a U[YgZ`UfhUbX`XYg][`b`dfc`YWgZ`Ug`k Y`U`g
dfYgYbhU]cbg`k \YfY`gca YcbY`dfYgYbh]`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`

hUddfcdf]UHY`dUfUd`fUg]b[.`7`U`b[]b[`U`ZYk `k cfXg`UbX`d`fUgYg`k \]Y`a cghmifYU]b]b[`hY`cf][]bU`
ghfi W`i fY`UbX`#`f`dfc[fYgg]cb`cZ]XYUg`cZ`hY`cf][]bU`Z`UbX`]bZcfa U]cb`k]h`ci hUW_bck `YX[Ya Ybh`H\]g`U`gc
Udd`]Yg`]b`dfYgYbhU]cbg`k \YfY`gca YcbY`dUfUd`fUgYg`UbchYf`g`]XYUg`cf`k cfXg`k]h`ci hW`YX]h`UbX`hc
d]YW]b[`hc[YhYf`ei chYg`UbX`dUfUd`fUgYg`]bhc`U`bYk `k \c`YZ`k]h`ci hUddfcdf]UHY`fYZYfYbW]b["

7 c`i g]cb. `k cf_]b[`k]h`chYfg`Vi hdUgg]b[`cZ`hY`k cf_]Ug`U`dYfgcb`g`]bX]j]Xi U`k cf_"`7`c`i g]cb`U`gc
]bW`i XYg`dfcj]X]b[`mci f`k cf`_hc`UbchYf`gh`XYbhVYZc`fY`hY`Xi Y`XUHY`Zc`f`Zc`f`hY`di fdcgY`cZ`hY`a
d`U[]Uf]g]b[`UhUbm]h`a YZ`dUm]b[`UbchYf`dYfgcb`hc`dYfZcfa `Ub`UWUXYa]W]Ug`_Z`ghYU`]b[`cf`UW`ei]f]b[
UbchYf`dYfgcb`g`UWUXYa]Wk cf_]UbX`W`dm]b[`]hZcZYf]b[`hc`W`ta g]T `c

- i bXYfgHUbX'mci f'f][\hg'UbX'fYgdcbg]V]]hYg'Ug'U'gh XYbhUhl BGK
- VY'Uk UfY'cZd'U[]Uf]ga ž'Wc'dmf][\hž' BGK 'Gh XYbh7cXY'cZ7cbXi W'Ubx'5Ww'dhUV'Y'I gY'cZ I BGK '⇒H'F Ygci fW'g'Dc`]Wm
- VY'Uk UfY'cZh'Y'ghUbXUfXg'cZVY\Uj]ci f'YI dYW'X'cZYj Yfmcby']b'h'Y'I BGK 'Wca a i b]m
- `cWJH'gYfj]Wg'UbX']bZcfa Uh'cb'UVci hl BGK 'UbX'I BGK '@]VfUfm

Gca Y'cZh'YgY'UfYUg'k Va

5 WUXYa]WbZcfa Uhcb`

: cfYggYbh]U`ghi XYbh]bZcfa Uhcb`fY`Uh]b[`hc.

- fYei Yghg`ZcfYI hYbg]cb/
- `UhY`gi Va]gg]cbg`[i]XY`]bYg/
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- I BGK `<YU`h`UbX`GUZY`midc`]WYg/
- YI Ua]bUh]cb`dfcVWXi fYg/
- gdYW]U`Vc]bg]XYfUh]cb`]b`hY`Yj Ybhcz]`bYgg`cf`a]gUXj Ybh fY/
- ghi XYbhYei]m]UbX`X]gUV`]m/
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