Maderas Golf Course, San Diego County, 9th hole. Your teacher brilliantly birdied this hole. He triple-bogied the one in the background. You should play golf to understand options because you learn how things can go from really good to really bad really quickly.

**Put and Call Options**

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### Call Options

... definition of contract

Gives the owner the right to **buy** the stock from the option writer at the **strike price** on or before* the **expiration date**.

The party who sells this contract and the right that goes with it is **writing** the call.

If the party writing the call also owns the stock, he is said to be writing a **covered call**, otherwise she is writing a **naked call**.

A single contract is always for **100 shares** of stock.

* on the expiration date for European options.
Put Options
... definition of contract

Gives the owner the right to *sell* the stock to the option writer at the *strike price* on or before* the *expiration date*.

* on the expiration date for European options.

Put and call options are financial assets called derivatives, because their value depends upon the value of the underlying asset which, by contract, they are attached - in this case, the value of the underlying stock against which the option is written.

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**Reading the Options Chain**

<table>
<thead>
<tr>
<th>Strike Prices</th>
<th>Bid/Ask same as stocks</th>
<th>IBM's stock info</th>
<th>Out of the Money</th>
<th>In the Money</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>IBM 12/13/2011</strong></td>
<td>51 Days to Expiration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Calls</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>105.00 Call (10)</td>
<td>2.28 2.27 0.84</td>
<td>2.16 1.34 3.58</td>
<td>4.65 0.91 2.95</td>
<td>105.00 Call (10)</td>
</tr>
<tr>
<td>110.00 Call (10)</td>
<td>3.00 2.99 0.93</td>
<td>2.69 1.88 3.93</td>
<td>5.10 0.90 3.25</td>
<td>110.00 Call (10)</td>
</tr>
<tr>
<td>115.00 Call (10)</td>
<td>3.70 3.69 1.33</td>
<td>3.40 2.69 4.86</td>
<td>6.10 1.30 4.53</td>
<td>115.00 Call (10)</td>
</tr>
<tr>
<td>120.00 Call (10)</td>
<td>4.40 4.39 1.73</td>
<td>4.10 3.40 5.76</td>
<td>8.10 1.70 6.53</td>
<td>120.00 Call (10)</td>
</tr>
<tr>
<td>125.00 Call (10)</td>
<td>5.10 5.09 2.13</td>
<td>4.80 4.10 6.76</td>
<td>10.10 2.10 8.53</td>
<td>125.00 Call (10)</td>
</tr>
<tr>
<td>130.00 Call (10)</td>
<td>5.80 5.79 2.53</td>
<td>5.50 4.80 7.76</td>
<td>12.10 2.50 9.53</td>
<td>130.00 Call (10)</td>
</tr>
</tbody>
</table>

Source: [Ameritrade Option Chain](http://www.option-chain.com)
You can buy the IBM November 19 195 Call for $1.82 (OOM), which gives you the right to *buy* IBM for $195 per share between now and Nov 19.

You can buy the IBM November 19 175 Put for $8.05 (ITM), which gives you the right to *sell* IBM for $175 per share between now and Nov 19.

Note: These examples assume purchases at Best Ask. Obviously you can submit a limit order at any price.

Note the big Bid/Ask – the less the liquidity the bigger these spreads.

Potential Call Option Values
(upon expiration)

This shows only what the option will be worth if held to expiration, given the possible prices of IBM.

This is a bet that the stock price will rise.

This is the Nov 19 (exp) IBM OOM 195 Call, purchased at $1.82 (BA) on Sep 29, when IBM was $177.62 (last).
Potential Put Option Values (upon expiration)

This shows only what the option will be worth if held to expiration, given the possible prices of IBM.

This is the Nov 19 (exp) IBM OOM 175 Put, purchased at $8.05 (BA) on Sep 29, when IBM was $177.62 (last). This is closer to the strike price that the call, hence more valuable.

This is a bet that the stock price will fall.

Writing calls and puts

An option trade is a contract. If you buy a call option, you have entered into a contract with some other trader who wrote that call option. That may be a small trader just like you. So long as you have permission from your brokerage to trade options, you can write them (sometimes with substantial restrictions) just as easily as buy them. When you write a call for 1 contract (representing 100 shares of stock) then you create Open Interest of 1 contract.

When you offset this by Buying to Close (if you do that) the Open Interest falls by 1 contract.

When writing calls, if you own the stock that must be delivered if the option is in the money at expiration, you are writing a covered call, which is generally allowed without restriction.
Jargon

**Call:** in the money (ITM) if strike price < stock price  
out of the money (OTM) if strike price > stock price

**Put:** in the money if strike price > stock price  
out of the money is strike price < stock price

In-the-money call premium = OP - (Stock price - Strike price)  
For the 175 call: 7.53 = 10.15 - (177.62 – 175.00)

In-the money put premium = OP – (Strike price - Stock price)  
For the 195 put: 2.57 = 19.95 - (195.00 – 177.62)

Out-of-the money premium = Option price (it has no intrinsic convertible value)

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Buying and Selling Options Online

Suppose I want to buy the November 190 call marked below in the diagram cut from my TDAmeritrade account. To buy this option if I submit a market order it will be bought at ASK (3.15). But look at the spread between BID and ASK. I really should submit a limit order, though, at ASK or below, although if it is not at ASK it may not get executed. One option is to submit a limit order between BID and ASK, like 3.10. Another option is to target an even lower price, put in a day order and hope that the stock and the option dip down and the order executes. Also note how Bid/Ask has walked away from Last in this volatile market.

<table>
<thead>
<tr>
<th>Calls</th>
<th>Bid</th>
<th>Ask</th>
<th>Last</th>
<th>Change</th>
<th>Vol</th>
<th>Op Int</th>
<th>Strike</th>
</tr>
</thead>
<tbody>
<tr>
<td>190.0 Call</td>
<td>3.05</td>
<td>3.15</td>
<td>2.93</td>
<td>-0.17</td>
<td>243</td>
<td>2,339</td>
<td>190.00</td>
</tr>
<tr>
<td>195.0 Call</td>
<td>1.77</td>
<td>1.82</td>
<td>2.01</td>
<td>-0.30</td>
<td>259</td>
<td>1,142</td>
<td>195.00</td>
</tr>
<tr>
<td>200.0 Call</td>
<td>0.93</td>
<td>0.98</td>
<td>0.90</td>
<td>-0.04</td>
<td>177</td>
<td>1,517</td>
<td>200.00</td>
</tr>
</tbody>
</table>
Typical online option trading interface (TD Ameritrade)

This is a limit order to buy-to-open 10 contracts of the IBM Nov 195 Call at $2.10.

Action dropdown options:
Buy to open
Sell to close
Sell to open
Buy to close
Exercise

Usually you provide no special instruction. FOK means fill within seconds or kill – a day trading order.

Buy to Open call  *Trade Ticket at TradeKing* (Oct 2012)

An example of a *TradeKing Trade Ticket* option buy order for an IBM 215 Nov Call option. This is a day limit order at 2.75 when Bid is 2.99 and Ask is 3.05, to buy to a single contract.

If successful, later when we offset (exit the position) we would select the Sell to close radio button with a new limit order at a relevant price.
Pointers about option trades

- There is often a large spread between bid and ask, and this really cuts into option trading profits.
  - conversion to electronic trading from open outcry is helping
- Never, ever, use a market order for an option trade.
  - or you may be real surprised at the price you pay.
- Before trading an option, always check *open interest* and *volume* for liquidity.
- Once an option goes into the money or becomes profitable, it can be difficult to decide when to sell it.
  - take profits now or hope that it goes higher and pray that it doesn't fall back out of the money.

The premium of an out-the-money option can be thought of as simply the price of the option because the option has an intrinsic value of 0 at the moment.

The premium (and the price) is a function of

1. The degree to which the option is in the money (more is smaller) or out of the money (more is greater), which implies that it is a function of the underlying *price of the stock*.
2. *Time to maturity* (shorter is smaller), which implies *time decay* as time elapses.
3. The underlying stock's *volatility* (greater is larger)
2. Time Decay

This shows the actual projected time decay of a March 75 DIA call option, purchased for $1.51, when DIA was trading at $72.15 (implied daily volatility at 0.0156), calculated using an option calculator. This assumes no change in DIA price and no change in volatility.

3. Sensitivity to Stock Volatility

Option premiums (and values) rise sharply when underlying stock volatility rises as here ...

... and fall when volatility falls.

The VIX index, shown above, measures the relative volatility of the S&P 500 (and hence SPY). When the volatility of any underlying stock rises, premiums and option prices rise with it, sometimes even enough to overcome a movement in a stock’s price in the wrong direction! Note: there are many ways to measure stock volatility. The VIX is a good proxy. There are VIX ETFs – VXX is heavily traded.