Super-Simplistic Guide to Sampling Choices (another "it's so simplified it's scary" thing)

Random Samples	
Simple or completely random	Use when you have no need to subdivide the population into groups. For example, you would use this approach if you have no reason to believe that a completely random sample will result in under-representation of some groups or you are not interested in making any comparisons between sub-sets of the population. Completely random samples are often very hard to complete because you must have a list – a sampling frame – or something like that to ensure that your selections are in fact ***completely random.*** You just assign a number to every member of the sampling frame and then select the sample through random number generation. You will usually want to compare at least two groups – men and women, adults and adolescents, high and low socio-economic status. You would select a completely random sample ***of each comparison group.***
Stratified random	Use a stratified random sample when you want to make include and compare sub-groups in a population. Assign each member of the sampling frame to a stratum. Then select a simple random sample from each stratum. For example, take a study that involves comparing the importance of media images of ideal body type for adolescents. Assume the hypothesis is that media influence will be greater for women than for men. Then men and women are the two ***comparison groups.*** However, you may also want to examine differences ***within each comparison group*** for Anglo, Hispanic and African-American men and women. These three groups would be the ***strata*** within each comparison group.
Systematic random	Systematic random samples can save a lot of effort and are not as dependent on having a sampling frame as the completely random or stratified random samples. It is often used when you want sample at something like a sporting event or on the street – venues where you have no idea who will "show up." Systematic random sampling is used a lot for spatial samples, too, like houses in a voting precinct, when you do not have a list for a sampling frame. Pick the first participant completely randomly. Then pick the remainder at equal intervals. Ideally, the interval is determined by dividing the total sample size needed by the number of potential people (or things) in the accessible population. In fact, we often cannot do this because we do not know how many people are in the accessible population. So, more commonly, we simply pick a number randomly (from a random number generator), like "8," and we stop every 8th person and ask them to participate in our study. As in the previous examples, you would determine sample size for each comparison group and continue sampling until that size is reached.
Clustered random	Use a cluster random sample when the study population or sampling frame has a clustered distribution. They are especially useful when the clusters are far apart, rare or scarce, or simply "hard to get to." For example, assume you want to sample people who reside in rural communities of less than 5,000 compared to people who live in rural communities of more than 5,000. A completely random sample would be very time consuming and expensive. You could us a clustered random sample. List all of the <5,000 and >5,000 communities. Number each one. Pick a random sample of ***communities in each comparison group.*** If the number of units per cluster is small, you can simply include all of them in each cluster selected in the sample. However, you probably would not want to sample everyone or every household in communities of thousands. You could draw a proportional sample from each community, based on the total sample size needed for each comparison. For example, assume you need a sample of 450 households (to make it easy) from each comparison group. Let's say that there are five communities in group 1 the <5,000 group. The total number of households in all 5 communities is 4,500. Community 1 has 1,000 households or 22% of the total households in all 5 communities (1000/4500). Community 2 has 500 households or 11% of the total. Community 3 has 1,500 households or 33% of the total. Community 4 has 800 households or 18% of the total. Community 5 has 700 households or 16% of the total. Take 22% of 400, or a sample of 88 from Community 1, 11% of 400 or 44 from Community 2, etc.
Multistage clustered random	Proceed as for the cluster sample, but select participants from each cluster using a completely, stratified or systematic random sample.

Non-Random Samples	
Referral "Snowball"	Used a referral sample when potential participants are hard to identify or find. You will usually start by identifying key informants. These are people who can provide you with a good description of where and how you might contact people in the population. They can also often give you good advice about sub-sets of the population that are apt to be overlooked if you are not aware that they exist or differ in some way from others in the population. Sometimes key informants can put you in touch with members of the population. The procedure then is to start with Tier 1 (the first people in the sample). Ask them to give you references to people they know. These are Tier 2. Those people then refer you to more people – Tier 3. You should keep sampling until the needed sample size is achieved, but you may need to sample well beyond the minimum. Set rules for yourself. I common use three rules: (1) include at least three tiers, (2) keep sampling until at least X% (30-40, whatever you define as the cutoff) of the names are not new, and (3) keep sampling until I am not getting any "new" ideas or information from the participants. The initial Tier 1 is critical. If this tier is biased in some way, they will refer you to people "like themselves," and you whole sample will be biased. Similarly, it is a good idea to ask people for a specific number of references – "Please indicate 5 other people I can ask to participate" – instead of letting people name as many as they want. This avoids having one person unduly influence the composition of the sample.
Quota	There are four common reasons why people use a quota sample. (1) The researcher wants to make sure that sub-groups of interest are represented in a sample. For example, assume you are comparing male and female adolescents with regard to smoking. Male & female are the comparison groups. But perhaps you want to examine the influence of parental behavior, as well as the differences between men and women. You may need to increase the number of "smoking parents" in your sample because they are rare. If you do not have at least 30 or 40, you probably would not be able to conduct any statistical analyses, for example. If you had only 3 or 4 smoking parents in each group, you probably could not conduct any qualitative analyses either. So you "up" the number of smoking parents in the sample – you "over represent" them compared to their frequency in the population. Always check with a statistician before using this approach. There may be some other sampling approach that is better. (2) Some researchers essentially use a quota sample to substitute for a stratified sample – to get representation of various subgroups ***proportional to their occurrence in the population***. This is probably OK, but if the researcher is using a random sampling approach I think it would be better to simply use a stratified random sample. Ask a statistician. (3) The researcher determines sample size for statistical test purposes, usually means that you need more participants than the calculated probability sample size. For example, some statistical procedures call for some minimum number of cases per independent variable, 5, 10 and often more. A statistician could well tell you "you need at least 30 respondents per independent variable to run this test." This has to do with the statistical procedure itself – and I do not claim to understand the details of this. Check with a statistician, especially if you plan to use procedures like factor analysis or structural equation modeling. Let's say the number required is 10 per independent variable. If you have 10 variables, you will need at least 300 respondents ***per comparison group*** even if the calculated sample size needed for a probability sample would only be 156. ***Always go for the larger of the two numbers the calculated sample size or the size needed to run the tests you want to use.***
Volunteer	This is usually used because the research poses some risk to the participant or because the nature of the information that you want is sensitive. Sometimes it's because there is no way to identify members of the accessible population. The key here is to try to make as sure as you possibly can that the volunteers do not differ from the people who decide "not to volunteer" in your study in ways that can affect the outcome. This is a big problem for both internal and external validity of volunteer samples in some studies. It depends, however, on other decisions. For example, this is not usually a problem in true experiments. At any rate, you need to clearly decide what characteristics could affect the outcome and then screen volunteers for those characteristics. Another procedure is to try to find out why people chose not to participate – to see if they do differ from the participants in ways that can affect the outcome of the study. Note that "convenience" and "accidental" volunteer samples are not recommended. You should determine the needed sample size, obviously.

Judgmental or purposeful	There are many types of judgmental or purposeful samples, including maximum variation, homogeneous, matched and critical. In all cases, the researcher selects the participants because they have specific characteristics of interest to the researcher ***that will affect the outcomes or findings of the study***. Judgmental or purposeful samples are sort of the "opposite of" all of the other types we have discussed. In the other cases, we typically want to make sure that the characteristics of the people in the sample ***will NOT affect the outcomes of the study.*** In the judgmental or purposeful sample, on the contrary, we pick them ***because they have characteristics that will affect the outcomes.*** For example, we often use judgmental sampling with case studies. We select cases ***because*** they have attributes that are central to our study and we know this about them ahead of time. This typically involves gaining information about the potential participants ***before sample selection***. Unfortunately, lots of people sort of "throw around" the terms judgmental and purposeful sampling – often when they should have said "convenience" or "haphazard" (see below). Usually, they are confusing screening criteria (like age) that they have established because they do **not** want to include that variance in the sample. Screening is fine as long as it is theoretically justified. For example, you probably would not want to include anyone who has never smoked or used any tobacco product in a study about barriers to quitting the use of tobacco products. It makes no sense. So you would screen by asking a potential participant "Do you now or have you ever used tobacco?" If someone says "no," tell them thank you and move on. They are not a member of the population of interest. Do not confuse screening criteria and purposeful or judgmental sampling. If a research report says the sample was "purposive" or "judgmental," check what they really did. They may mean that they used screening criteria – in which case you have to decide whether the criteria were theoretically justified.
Convenience or Haphazard	The researcher selects participants because they are the easiest to get, a least effort sampling approach. Put another way – there is no theoretical or statistical justification for how the sample was taken or the sample size in many cases. This kind of sample does not result in a valid sample for most research purposes because the sample permits neither statistical nor theoretical generalization. But some people use this term pretty freely, too. For example, I might decide to conduct a study about student volunteerism among college undergraduates at UF. It's true. This is convenient for me. However, it may also provide a perfectly fine random sample. I need to decide what characteristics of a university could potentially affect the outcomes of my study. I need to make sure that there is nothing particularly "different" about UF in terms of things like requiring that students volunteer X hours per semester or something similar that would make UF student different from students at other universities in terms of their propensity to volunteer. If, on the other hand, I was at a small, elite university (read high cost) that requires 50 hours of community volunteer work or one summer semester of community volunteering of all students, I certainly would have to be very careful about generalizing my results to "all university students in the US." Even in the case of UF, I would probably say you could generalize to "students at major public universities in the U.S.," not all universities. Neither of these would be a convenience or haphazard sample just because I chose to do it where I work – as long as I can make a case that the sample will be representative of the theoretical population. Even if a researcher uses the term "convenience sample," read the sampling procedures carefully. They may have used some other sampling procedure and simply called it a convenience sample.