

LAOC COURSE SETTERS GUIDE

Introduction

This manual is for members setting courses for LAOC local and regional meets. Most of the information in this manual comes from USOF guidelines for courses. The manual covers general considerations of course design, specifics related to the different course levels and a chronological checklist of the course setter's duties for a local meet.

Classic Point to Point Course Guidelines

| Course | Length | Winning Time | Maximum Climb |
|--------|-------------|-----------------|---------------|
| White | 3K or less | 30 minutes | 3% |
| Yellow | 3.5K - 4.5K | 40 minutes | 4% |
| Orange | 4K - 5.5K | 50 minutes | 4% |
| Brown | 3.5K - 4.5K | 50 minutes | 3% |
| Green | 4.8K - 6.5K | 50 minutes | 4% |
| Red | 5K - 7K | 60 minutes | 4% |
| Blue | 7K - 12 K | 60 - 80 minutes | 4% |

USOF COURSE DESIGN GUIDELINES

GENERAL CONSIDERATIONS FOR ALL COURSES

Objective

Orienteering's slogan is "the thinking sport"; doing well requires a combination of physical and mental skills. These skills are put to the test by the course setter, working in the framework of the given map and terrain. It is nearly impossible to set a course that does not offer a good physical test, providing that it is of the proper length; the challenge for the course setter is to offer a mental test appropriate to the skill level of those for whom the course is intended.

Skill not Luck

You are setting the course for an orienteer, not a surveyor, so the feature you use must be distinct. You should avoid such control sites as "the middle of the marsh" (unless it is a very small marsh) or "the hillside." Why, because they introduce too much of an element of luck in to the competition. The competitor should be able to orienteer directly to the control if he is skillful, and not have to count on finding it by using a systematic search (he may end up doing that anyway, but he should not have to). Often a contour line will have a gradual bend in it that could be called a spur (or reentrant). Avoid this also; it may be hard out in the woods to tell just where the spur or reentrant is. Your features for control sites can be small, but they must be distinct.

In general, avoid dense areas for controls, especially if the terrain is somewhat vague. Again, it is a matter of what is fair. Are you requiring skill or luck? Finding a control point (for example, a pit) in the middle of a large, flat, dense area places too great a premium on luck, even if the point itself (the pit, say) is distinct. Dense areas are OK if the terrain is well defined.

Start-Finish Location

Good terrain for white and yellow courses, with plenty of linear features, often dictates where the start will be. Most competitors like to have the finish/competition center as close to the parking as possible. Move the start to a higher elevation to reduce course climb. Elevation on the walk to the start doesn't count against a course design.

Avoidance of Dog-legs

Leaving a control, there should not be a logical route that doubles back through the same area from which the control was approached. Why? Because competitor A may have competitor B just behind him, so that A reveals the location of the control as he is leaving it, thereby helping B. So it is at least potentially unfair, since some competitors may be luckier than others. Dog-legs may be obvious or not so obvious. For example, the best route to a control may be along the base of a hill to a reentrant with the control and then continue along the base of the hill to the next control. Coming back out of the reentrant is a dog-leg, even though the straight lines you use to connect the points on the map do not show this. To avoid dog-legs, you can put in a short leg - 100 to 300 meters long - to move the competitor away from the previous control to the start of another long leg. A similar problem can occur if you use the same control on more than one course. If runners on one course leave the control in the direction from which the people on the other course are arriving, that is a dog-leg. Avoid this as well. Under some conditions, it may be necessary to have a dog-leg on a white course in order to have clarity. While not desirable, a dog-leg on white is preferable to a course that is confusing or too difficult.

Avoidance of Dangerous Areas

Avoid including dangerous areas such as cliffs with poor visibility; sink holes, large areas of poison oak, or deep swamps. Remember, a white or yellow runner may go into these areas accidentally, while a red or blue runner may be tempted to try a dangerous short cut.

Controls on Similar Features

Have no less than 100 meters of distance between any two controls on different courses if the features are similar enough to be confused at all. Ensure the two similar features have distinctly different control numbers.

Optimum Route

Determine the "optimum route" that an orienteer would take on all of your courses. Measure its length in meters with the edge of a piece of paper or a string. Then count how many contour lines this route crosses going uphill. Multiply this number of contour lines by the contour interval in meters. This "climb" must not be over 4% of the optimum route distance. Also measure the straight line distance from point to point as the straight line distance and the optimal route climb describe courses. For example, a 6.7 km red course (measured by straight lines) with an optimum distance of 7.5 km should never have over 300 meters of climb. If it is, change your course so that there is less climb. Try removing the highest control, or try moving a control so contouring along hillsides is the most likely route choice. A longer walk to get to a higher start area can also help.

Control Placement

A non-mapped feature for any course should never hide controls. It is extremely frustrating for the orienteer to navigate a leg properly only to lose time searching for a hidden control. Controls should also not be behind a small feature, such as a boulder, that if a competitor were punching they would be visible but not the control. Remember, unless the description information clearly implies otherwise, every control should be equally visible for all directions.

For white, controls should usually be visible from the trail or road used to navigate. For other courses, the control feature should be seen first and then the control. In no case should the control be hung low, near the ground. Hang the controls at waist height.

It is fair, and often desirable, to block the view of the control by a mapped feature, especially where it is the control feature, such as a cliff, boulder, etc. But, be sure the feature is appropriately visible. It is hard to improve upon a control on the far side of a knoll, seen first as the runner reaches the crest or comes around the side. On the other hand, nothing is worse than a control hidden behind a log, bush or other unmapped obstruction, which punishes all but the lucky few who stumble upon it.

It is desirable to place controls from different course as least 60 meters apart regardless of the control feature.

Manned Controls

Be careful of crossing a course over on itself. Sometimes people will take controls out of order to decrease the course length for them. This is unfair to people who do the controls in the correct order. In this situation, you may need to have a manned control to discourage cheating. The manned control would be at the control after the tempting control is passed. If the person at the manned control determines that a control was punched out of order, the orienteer's punch card is marked DSQ immediately.

Water Placement

Water stops are needed on almost all courses whatever the weather. Usually, water stops are at a control. On longer courses, water stops should be approximately every 3 km. A water stop will have a garbage bag, a bag of clean cups, and however many gallons of water. One gallon can provide between 15 and 20 small cups of water. Estimate how many people will be going to that control to determine how many gallons may be needed. Remember that water is heavy. If possible create a water stop with easy access.

Hidden controls

Despite the consideration that the feature, not the bag, should be seen first, do not hide bags (especially in pits).

Duplicate Courses

If for some reason you are having duplicate courses, try to make them very similar in length, climb, and number of controls. The reason to do this may be that you expect large numbers of people on the course level, which makes it impossible to schedule staggered start times within a 2 hour period and get everyone out on the course.

Field Check

Check the planned control locations out in the field. Many controls are unsuited due to map problems. You will find that even on a good map; up to 10% of the controls selected "on paper" (by yourself or suggested by the course consultant) will have to be rejected (and alternate chosen) after checking them in the field. The rejections can be due to unsuitability of the map, vegetation, etc. An alternate control can usually be found only a short distance away, so that the leg can remain intact.

Course Purpose

For the design of the less difficult courses, it is important to be mindful of three overriding considerations which distinguish these courses from the advanced courses, namely brown, green, red and blue.

1. While as a general rule the advanced courses each should be designed to be as technically difficult as terrain and map permit (and of equal technical difficulty), each of the lower courses - white, yellow and orange - must be designed to fit a distinct range of technical difficulty.
2. Because each of the lower courses is an A level, or championship course, for certain age classes the correct design of such courses is just as important as that of the advanced courses.
3. Because beginners and developing orienteers spend at least a season or two (usually longer) running the lower courses, it is especially important to the development and success of the sport that these courses be well designed.

White Course - 3 kilometers or less Winning time 30 minutes

The white course should be designed for people who may have no orienteering experience and have had perhaps 15 minutes of instruction before setting out. While it is the championship course for M-12 and F-12, the major complaints about white courses have been that they are too difficult.

A white course must be set in a section of the map that has an appropriate sequence of linear features, where the mapping is accurate and where, preferably, there are an interesting variety of topographic features. An ideal example would be a small lake, which can be circumnavigated without fear of losing one's way and with the expectation of a good trail system and interesting features. Usually the area of the map having the most trails is best for white course location.

1. An easy start. Make the first two or three points particularly easy. This allows the competitor to get familiar with the map and keeps him from getting discouraged from the very beginning. The first control should be as simple as possible - in fact; it can even be visible from the starting point.
2. Linear features. Keep every leg along well-marked trails or a similar linear feature such as a road, stone wall, field edge, stream or the like (trails are much preferred, however).
3. Short legs. Generally the legs should be kept fairly short - certainly no more than 400 meters. It is better to have six to eight short legs than three or four long ones. On the other hand, don't use twenty legs each 100 meters long.
4. Large features for control points. Make the difficulty of the control fit the course. Use large, obvious features - top of a big, distinct hill, rather than the back side of a three meter knoll; a trail junction rather than a reentrant. Rarely, therefore, will a control be suitable for both the White Course and the Orange Course.
5. Avoidance of vague and dense areas. As with any course, the features you choose for control sites must be distinct; even large features can be vague, for example the top of a large flat-topped hill. Also, if you pick precise spots, you will get fewer comments about controls being a little bit off. Never put a White control in a dense area.
6. Very simple route choices. It is not necessary to have a route choice on a White Course, but sometimes it is nice to offer a little toward the end. The options should be rather simple. Remember, people on White Courses may take routes that you would never dream of. A good example would be a leg having a long, safe route (e.g. along a trail) and a shortcut (through woods, along a stream, etc). Provided there is no danger of getting seriously lost such a design introduces some elementary navigation factors and adds challenge and variety.
7. Suitable terrain. Generally, the terrain you use for a White Course should be friendly, with lots of good handrails, no excessive rugged features, etc.
8. Interest and variety. Guided by the above constraints, all effort should be made to add interest and variety. Study the map for distinctive features such as large boulders, cliffs, stream junctions and the like. Locate the control at such a feature, but be sure it (the feature or even the control) can be seen from the trail. Make sure that there are no similar features nearby to confuse the runner.
9. Limit distractions. Be sure to check the other courses to ensure that there are no nearby controls to confuse the White Course runners. A white course that runs near a playground ensures a diversion for families with small children.
10. Use of streamers. If necessary, a leg can be run through the woods guided by streamers, but this should be used only in exceptional circumstances where needed to optimize distance due to lack of linear features.
11. No use of compass. Avoid directions or features that require the use of a compass. A White Course should be able to be completed without having to use a compass.
12. Start area. Almost without exception, the ideal location for the White Course because of its length dictates or constrains the start area for all courses. The practice of having separate start areas for one or more of the lower courses should be discouraged. Herding beginners and youngsters to a separate competitive area is very detrimental to development, both the individual and the sport's as a whole. The mix of competitors of widely different ages and skill levels epitomizes the fun and vitality of orienteering. The course designer who would segregate competitors, for his own convenience, at once undermines and misunderstands much of the unique attractiveness of orienteering.

Yellow Course 3.5 to 4.5 Kilometers
Winning time 40 min

The Yellow Course is designed for males or females who are 12 to 14 years old and for older orienteers who are relatively new to the sport. It offers the beginning orienteer an initial experience with the application of orienteering techniques, and the course designer should make an effort to involve as many fundamental skills as possible - compass, map reading, pacing, route choice. The course should follow handrails but the controls should be off handrails.

1. Basic design. Just as with White it is critical that the Yellow Course be set in an area having well mapped, clear features. It is vital to appreciate that, in several senses, the basic difference from White is that Yellow takes the runner from the trail into the woods. For instance, on White the course can be navigated entirely along trails, while on Yellow it should be navigated mainly off trails. While trails can be used for a route on a Yellow leg, a faster off-trail route should also be available for the same leg.
2. Easy course. Yellow should still be an easy course. These competing considerations confine the technical difficulty for Yellow to a rather narrow range. This objective is accomplished by the use of a handrail for much of each leg's length, with a catching feature near (25-50 m) each control. The best Yellow legs are along handrails such as streams, ridges, vegetation boundaries or stone walls.
3. Route choice. As with White, again some challenge can be used by shortcuts through open woods, but only if the distance is relatively short (up to 200 m, at most), and provided that a catching feature exists. And even in such cases, a longer "safe" route should exist.
4. An easy start. Make the first two or three controls relatively easy so that the competitor may become familiar with the map.
5. A variety of lengths of legs. Vary the lengths of the legs, but tend toward keeping them short. The maximum length should be 600 meters. Legs should be longer than White, usually 200 - 400 meters is good for Yellow.
6. Large features for control points. Use large and rather obvious features, such as trail junction, top of hill, north side of pond. When a point feature is used, it should be within visual distance of a large feature.
7. Control placement by a collecting feature. Put each control on or just after an obvious collecting feature, if the control is not on a collecting feature put it within 50 meters of one, preferably just after it.
8. Catching features. If a control is not on a collecting feature, a catching feature must be within 100 meters after the control.
9. Avoidance of dense areas. Never put a Yellow control in a dense area.
10. No use of compass. A Yellow course should be able to be completed without the use of a compass. A leg where use of a compass will result in a faster route is appropriate, however, that leg must have a reasonable route where a compass is not required. Very little contour reading should be needed.
10. Shared controls. The practice of sharing a leg or control with White or Orange should be avoided, especially if a large turnout is expected. Because each of the three lower courses has a discrete range of technical difficulty, overlaps invariably cause compromise with correct standards.

Orange Course - 4 to 5 Kilometers Winning time 50 min

1. Moderately but not extremely difficult navigation. The controls and best routes should invite the intermediate orienteer away from strong collecting features (roads, trails) that the beginners must rely on. However, the penalty for navigation errors should not be extreme. An orange control may be placed in an area of intricate small features, but only if there is at least one good attack point near by (preferably several) to help the competitors find it, and also a catching feature nearby on which they can "bail out" if they become confused.
2. Lots of route choice. Set a course that forces the orienteer to make decisions constantly. Make sure that the competitor must continue to pay attention and think in order to execute his choice properly - it should not be, for example, just a matter of choosing which one of two main roads to follow for one kilometer. The best Orange legs require, and reward, constant navigation. Handrails should be infrequent and more suitable than for yellow e.g., a long, broad reentrant. Rather, the runner should pick off point markers (cliffs, boulders, knolls, marshes, etc.) as he proceeds along his chosen route. A trail - or a road - run should never be the best choice.

3. Variety. For variety, easy legs near Yellow in difficulty should be mixed with challenging legs near Red; in addition, a mix of short (200 - 300 m) and longer (500 - 600m) legs is desirable. It is important that the whole course contain as much variety as feasible. This variety should also cover control features, direction, route choice and navigation problems.
4. Control Features. The control feature should be prominent, unless a good attack point and catching features are nearby. The Orange runner should be forced to use all of his orienteering skills in the overall course. Always place catching features beyond the controls.
5. Winning time. The fastest time should be about 50 minutes. Keep in mind that some very skillful 15-16 aged runners will be on Orange; so the course must not be too easy. A typical mistake is failure to reduce length due to climb, difficult -footing (rocks) and slow run (fight).
6. Compass and pace count. Legs requiring the use of compass and pace count should be limited to one or two. These are legs that cannot reasonably be done by map reading alone.
7. Difficult controls. Difficult controls may be used, but a good attack point should be nearby.

**Brown (3.5 to 4.5 Km), Green (4.8 to 6.5 Km), Red (5 to 7 Km) and Blue (7 to 12 Km) Courses
Winning Time 60 to 80 minutes**

The advanced courses should be set so that the very experienced orienteer is well challenged. However, the element of luck should be reduced as much as possible. The Brown, Green, Red and Blue courses all should be on the same technical level - difficult. General requirements are the same. However, special consideration, noted at the end of this section is required for Brown and Green.

1. Start. Choose the start for Brown, Green, Red, and Blue courses with regard to proximity to as good White/Yellow areas with lots of trails and linear features. In hilly areas, place the start at a high elevation to help minimize unnecessary climb.
2. Winning time. Recommended winning times are 50 minutes for Brown and Green, 60 minutes on Red and 60-80 minutes for Blue (USOF Rules). Try to keep your course length reasonable, especially on hilly courses or in thick vegetation, to meet estimates.
3. Control feature size. If you put the control on too large a feature it is usually very easy to find; therefore the competitor does not need to use precision techniques. Too big a feature might be the top of a large hill, the edge of a large clearing, a point along a trail or stream (if there are any confusing trails or streams this could be OK), etc. In fact, having a control within 50-75 meters of a big feature is probably too easy as well. Use small features - boulders, cliffs, small reentrants, spurs and knolls, small marshes, depressions, etc. Make the competitor orienteer to the feature before he can find the control. If he is coming from the south, for example, place the control on the north side of the knoll or boulder.
4. Controls too close to collecting features. Placing a control soon after a collecting feature, for example, 100 meters after a road, will usually make it too easy to find even if the feature is small. Furthermore, the competitor will probably be able to run to the road without thinking, making the leg too easy. Instead, place the control some 200 meters before the road. That way the less skilled orienteer will have to cover the extra 400 meters if he must use the road to find his bearings. Collecting features are long features lying cross the competitor's direction of travel, such as roads, large trails, streams, ridges, clearings, large marshes, etc. Concentrate on this: if the competitor uses them to make his route or his navigation easier, make him travel farther out of his way. Don't make the direct route the easier route.
5. Lost kilometers. This term refers to any part of a course that requires little or no thinking, merely physical effort. They are to be avoided as much as possible, as the preceding paragraphs have already indicated by implication. If a control is on top of a large hill, the leg becomes a hill-climb event instead of an orienteering event. If the control is placed right after a big collecting feature, the competitor can turn off his mind until he reaches the feature. If the best route is along a trail for several hundred meters, again the leg becomes a racing event requiring little or no thinking.
6. Handrails. Try to avoid having the routes parallel to obvious linear features such as roads, trails, streams, fences or power lines. Keep such features more nearly perpendicular to your route unless the linear feature network is complex so that a parallel route may not simplify the leg significantly.

7. Catching features. Advanced courses should not have controls placed too close to catching features. Controls should not be located beyond a catching feature; rather, any catching feature should be at least 200 meters beyond a control.
8. Elevation gain. Climb should not exceed 4%. See "Optimum Route" earlier for the computation method.
9. Long legs. Include at least one leg in excess of 800 meters on each course.
10. Route choice. Maximize route choice and navigation difficulties while minimizing the luck element and the lost/dead kilometers. The navigationally most difficult route should be faster than the "easy way around".
11. Variety. A good course offers variety in both controls and routes. The larger the number and the greater variety of "O"-tests built into a course the greater the chance that luck is eliminated and the orienteer with the best ability wins.
12. Brown and Green courses. The majority of the competitors on these courses are older. In general, therefore, they may have some vision problems and only limited leg strength. The climb should not exceed 3% or at most 4%. Rough and dangerous areas must be avoided. While it must be less demanding physically, a Green course should require the maximum in orienteering skills. Vision is a major problem for the older orienteer. Try to keep controls out of areas that have much fine detail on the map. This tends to become a large blur and therefore promotes luck instead of skill.
13. Long-O. When setting Long-O courses, the emphasis should be on long legs with lots of good route choices. Legs of one to two kilometers are appropriate if they can avoid lost distance.
14. Map accuracy. Avoid poorly mapped areas or make the legs easier in these areas. The map must be good in the area of the control, or you must provide good map corrections before the runners start. LAOC has many black and white maps. On these maps do not use any features that are not mapped, such as vegetation boundaries.

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Key Definitions

Attack point

A feature, such as a large boulder, saddle, or stream junction, that is within 100 meters of the control and easy to locate. The idea is for the orienteer to use rough orienteering to find the attack point quickly, then use fine orienteering over a small area to find the control.

Catching feature

A feature, such as a trail, fence, or hillside, that is usually past the control and perpendicular to your route. It catches the attention of the orienteer who has traveled beyond the control and tells her that she has gone too far. It is sometimes useful to overshoot the control deliberately, hit the catching feature, and approach the control from behind.

Collecting feature

A feature, such as a reentrant or pond, which crosses your route to the control used to funnel you or direct you along your route.

Handrail

A linear feature, such as a trail or obvious reentrant used to guide an orienteer along a route. Beginner's courses are designed to use handrails, such as streams, fences, and power lines. For intermediate and advanced courses, the handrails are more subtle, such as ridges or distinct changes in contour spacing.

Course Symbols

The Start or map issue point is marked by an equilateral triangle with 7 mm sides.

A circle with a 5mm or 6mm diameter marks the control feature. Make sure the circle does not cover any important feature such as a boulder. Instead, break the circle so the information is visible. The center of the circle indicates the precise position of the feature but shall not be marked (i.e. do not place a dot inside the circle).

Two concentric circles of 5 and 7 mm diameters mark the finish when it is separated from the start. If start and finish are the same location, the start triangle is inscribed inside a circle.

For point to point courses a straight line links the start to control number 1, from control number 1 to number 2, and so on to the finish. Break the line if it would overlay important mapped features along the way. For score-O's do not place lines between controls.

For a White or Yellow course a flagged route is marked on the map by dashed lines.

Start Formats

Intervals. Intervals spread the competitors out so following is reduced. This is the required start format for classic point to point events. The interval must be at least 2 minutes between people on the same course. If copying a Master map, the interval may be better at 3 minutes. If you have pre-marked maps, 2 minutes will work well.

Mass start. In a mass start, everyone starts at the same time. This is typically used for a score-O type event, or a Long-O. In the Score-O people will separate out based on their route choice to the controls. In the Long-O the following will be limited to one or two controls until people separate out due to differences in their speed.

Chase start. A chase start is sometimes used to provide results quickly in multi-part or multi-day events. The winner of the earlier event goes out first on this course. They are followed by the second best person with a time lead of exactly the difference between their prior results. For example, the top 3 finishers in a short event had times of 20 minutes, 21 minutes, and 24 minutes. In the chase start, finisher #1 would start at time "zero". Finisher #2 would start at 60 seconds. Finisher #3 would start at 120 seconds. Everyone goes out relative to the best time on the course. At the finish, the winning results are exactly in the order that people cross the finish line. The Finisher #3 mentioned above would have to make up his 120 second start lag to pass Finisher #1.

Remote start. A remote start is distant from the finish. Typically this is used to reduce the elevation gain on courses by making people walk up a hill to get to the start. This type of elevation gain isn't counted against the courses. Once at the start any of the three start format options above are followed.

Control Descriptions

The control descriptions provide concise information on the type of feature, the exact location of the control, the control number and any additional information such as water stop, or manned control for each course. International symbols have been developed to describe orienteering controls. These are used for all intermediate and advanced course levels. See the last page of this document for the symbols. White and Yellow course descriptions are written out, such as "trail junction, NE side".

Keep in mind; these descriptions should not be overly wordy. Look at each control circle. If there are two or more of the same feature within the circle, a compass direction must be given for the correct feature. For example, if there are two reentrants running west to east in the circle and the correct one is the southern one, this must be provided in the description.

Part of the course setter's duties is providing enough copies of the control descriptions. There are many more people on the lower courses than the upper levels. In fact, many people on the advanced courses copy the control descriptions to their punch cards in order to eliminate losing the descriptions.

Some people call course descriptions "clues". There should be no luck involved in orienteering. Therefore, the control descriptions must be accurate. Provide the control descriptions to your course setter so they can verify the accuracy of the descriptions while they check the locations.

For White and Yellow level courses, the control descriptions are written out. For Orange and above, use the IOF symbols. You can pick up a useful description of the 8 column format at any of LAOC's events.

Course Setter Notes

Another job duty of the course setter is providing a large sign near Registration describing the courses offered and any hazards or special considerations the participants should know about before they go out. Make the notes visible from 5 feet away. Useful information includes the time that courses will be picked up (i.e. 2pm). Note the time limit for completing any course. Provide the length and climb for each course offered. Describe the courses in terms of their navigational difficulty not just length, as some inexperienced people will go for a Red course just based on length.

Master Maps or Pre-marked Maps?

Decide ahead of time if you will provide pre-marked maps or if courses must be copied by the participants from Master maps. Whenever you make copies of a course, be sure the product is legible. A color map should never be copied in black and white for competition. Too much information is lost.

When using Master maps make at least 2 master copies for each course. Place the appropriate course on the map board with the matching paint along the sides. White and Yellow copy their courses off the clock (i.e. before they go to Start). Orange and above copy their courses on the clock.

Pre-marked maps for White and Yellow are given out at Registration. For Orange and higher courses the pre-marked maps are given out at their start time.

LAOC prefers White and Yellow courses at least to be pre-marked. This allows the beginners to see the course and ask any questions before they go out. Mis-marking their own maps from a Master map can be devastating to a beginner. The great advantage of pre-marking courses is that people get through start and out on the course faster. The disadvantage is the cost of any un-used maps to the club.

The Event Coordinator can provide general participant counts from previous years to estimate how many copies to make. Always have some blank maps available. These can be pre-marked on the fly if the actual attendance is greater.

Weather Considerations/Cancellation

LAOC has not had to cancel any meets in the past 3 years due to weather. Courses may need to be modified or controls removed if there is a weather related safety concern. If there has been rain right before the meet verify that none of the controls are now in the middle of a swamp or roaring stream. If trails are suddenly too slippery so that you feel it is too hazardous, discuss canceling the meet with the Meet Director and LAOC Event Coordinator.

Tips for Course Setting

Start several months in advance. Field checking your initial design will take much longer than running the course would take. You will change your mind on appropriate control locations while you field checking.

The winning times are the most important guideline for course setting.

Determine parking location, then the start and finish location.

Find a good final control location for all courses within 40 to 150 meters of finish. This simplifies finish as everyone should come from the same direction. Since it will be shared by all courses, choose it by White courses standards. The other courses should approach it from different angles, thus enabling the leg to be of the appropriate navigational difficulty.

Never share White course controls with Yellow controls.

Place White controls so that they lead the beginner to the correct route. For example, at a trail junction, place the control on the far side of the correct trail so they won't get confused about which way to go.

Orange should have a majority of controls separate from the advanced courses.

The advanced courses can share controls, but be careful about the direction different courses approach from.

To avoid dog-legs make the exit from each control near 180 degrees.

If you have problems finding the control, and on each visit you decide to move it a bit, find another control location! The control locations you aren't sure of are the ones people will complain about after running the course.

Don't hide controls!

It's better to have route choice and fewer controls than trail runs and many controls on advanced courses.

Advanced courses usually need to go perpendicular to trails; otherwise many people will choose a trail run.

Make the courses navigationally difficult, but try to keep the physicality reasonable.

If the elevation gain is too great, try deleting the control that adds the most climb.

Never under-report the length or elevation of your courses. People will complain (and rightly so).

Place flagging tape with the event date, LAOC, and control # at each control location at least a month prior to the event. This allows vetting to be done, and provides the exact location for the control when it is hung.

Decide if you need a stand for the control, or if it can be hung from a tree or bush as you place your flagging tape. Make notes as you go. Also note all details of the control description.

Advanced course controls may be placed in the field during the week or Saturday prior to the meet.

When placing the controls, remove the flagging tape. The White, Yellow and any really visible controls are placed on the morning of the event. This is done to reduce the probability that controls will be stolen.

Don't forget to place water stops.

Be careful of crossing a course over on itself. Use a manned control if cheating is advantageous.

Tips for Vetting

Vetting is done to ensure controls are where the map is circled and are described accurately. The vetter takes notes as she goes along to provide detailed feedback to the course setter. It is easiest for vetting to proceed on one course at a time. In this situation the vetter can provide an estimate on winning times. If there isn't enough time to vet all courses separately, indicate on the map the approach direction into each control, so the vetter can verify the visibility and fairness of the approach directions.

Visit the start and finish. Mark the location of the start and finish with flagging tape.

Visit the control sites. Check the feature against the map. The site, approaches, and close attack points need to be checked for accuracy against the map.

Ensure the control location is suitable for the course level.

Approach the control from all probable attack points.

Check the control site with the control description. Note any clarifications.

Debrief the course setter. Discuss any problems with control descriptions: format, readability, suitability to the control site, code mismatching.

Go over perceived problems with the map.

Bring up anything found that might contribute to unfair competition.

Don't move any flagging tape or controls. Give that information to the course setter first. It's their decision and responsibility to correct any discrepancies.

Other Event Styles

Beside the standard or “classic” point to point courses a major variant is the Score-O. In a Score-O the competitor decides which route to take between many controls within a fixed time, usually 60 to 90 minutes. Controls are given different point values based on the distance from the start and the difficulty of the navigation. The person with the most points within the fixed time is the winner. There is always a penalty for being over time. The penalty must be high enough to discourage fast people from getting a few more points. A typical penalty may be 10 points per any part of each minute over time.

LAOC usually provides at least a White course along with a Score-O for first-time orienteers. Depending on the difficulty of the terrain, a Yellow course may also be wise. Without an easier option, a beginner will be tempted to go for the highest value control, which may be beyond their navigational skills.

Following is a brief description of other events. For more information on a specific option, talk to the Event Coordinator. Variety is the spice of life. Some of these options require much less time to course set than the six standard courses.

ROGAINE – “rugged outdoor group activity involving navigation and endurance”

A ROGAINE is a long Score-O which is held on a USGS map in a very large wilderness area with time limits of 4, 8 and 12 hours, or 6, 12 and 24 hours. ROGAINEs require participants to partner up and carry a whistle. This type of event also must provide a “hash house”, where people can get food through the evening and night.

Vampire-O

Typically held before Halloween with appropriate costumes. This is based on a score-O format over 1 hour, after dark with a mass start. For every 10 participants there will be 1 vampire. The vampires start 3 to 5 minutes after the mass start. They are equipped with a flashlight with red light. They don't get a punch card. The vampires go out searching for a victim. When they shine their red light on someone, that person is bitten and becomes the vampire. The old vampire gets the new vampire's punch card. The new vampire gets the red flashlight. The old vampire may not be tagged back. The winner is whoever returns within the time limit with the most control points.

Poker-O

Poker-O is a score-O format as well. Each control has a playing card as well as a punch. Which cards are at which controls is not known by the competitors beforehand. They visit as many controls as they want to assemble the best poker hand in the fixed time. The best hand wins.

Mystery-O

Create a mystery story that the participants must solve. Clues are hung at each control. This is a score-O format, as they can choose which controls to visit. When they think they know the solution, they return. Winner is the shortest time with the correct answer.

Street-O

Street-O is a score-O format too. Instead of standard controls, participants have to answer a question at each control location to prove they were there. Best street areas for this event are those with cul-de-sacs, or winding streets with route choices. The point value of the controls is determined by distance and difficulty of the question. Winner is highest point total in the fixed time.

Long-O

Long-O is a variation on classic point to point courses. Long-O is defined as courses that are 25 to 50% longer than standard. Long-O typically has several legs of greater than 1 km in length.

Night-O

Night-O is performed entirely after dark. It can either be a score-O, or standard point to point style. For the point to point style the winning times should be the same as a daytime point to point course. In setting a Night-O always provide an unambiguous safety bearing, stay away from hazardous areas such as cliffs, and realize that most people move slower in the dark.

Line-O

Line-O tests map reading. This is similar to point to point courses since everyone has a certain line to follow; there are no options about where to go. The number of controls on the line is not disclosed to the participants. They have to follow the line to find the controls. If they think the control is on the line, they punch the control in the order seen. There should be a penalty for missing controls, and a harsher penalty for additional controls. In setting this type of course, the control locations still must be at distinct, mapped features (i.e. at a boulder, at the north end of the pond, at a trail junction, etc.) Control descriptions are not given either. The line should provide practice in following contours, vegetation boundaries, and perhaps correct trail navigation. Line-O's typically don't work well in dense areas. This takes much longer for people to do, as they aren't confident they are always at the right place. Don't make these too long (i.e. 7 km).

Window-O

In window-O a standard point to point course is constructed. Then thick white paper is used to cover all but "windows" around each control location. Make sure the magnetic N direction and legend is still visible. The smaller the window, the harder the course is. Copy the covered master map to create pre-marked maps for all participants.

Memory-O

There are variations on Memory-O courses. For advanced orienteers you may provide only a master map at Start that they memorize. When ready they go out to collect the controls in the order given. If they need a refresher, they must return to Start to have another look at the map.

Another way of doing a Memory-O is to provide the next control location in a bit of map placed at the current control. So start would have one control marked on a map. When they memorized its location, they go out for it. If they forget, they must return to the last control location.

Corridor-O

Corridor-O is similar to Window-O but instead of windows, the straight-line route between controls is shown. The wider the corridor, the easier the course is.

Connect the Dots-O

This can be used to learn to quickly identify and interpret control symbols and control appearances on maps. Design point to point course of appropriate difficulty, making sure that each control location lends itself to a unique description. Mark the maps with the circles, start and finish location only. Participants use their control descriptions to determine which control is #1, #2, etc. The winner is the fastest with the correct order.

Motala

A Motala is based on point to point courses but also has loops. This is a good format to use in a smaller mapped area. At the finish of each loop, competitors return to the start to get the map for the next loop. The winner is the fastest time with correct punches. Typically, there are different courses for each level (i.e. White through Blue).

Diamond-O

Dave Ingram created the diamond-O format. It is similar to a motala except that there aren't separate course levels. There are four control locations placed in a diamond spanning the map given to

everyone at the start. At each core control there is another map with another set of diamond controls. At start you choose how many loops you will do. All must do the core set. Results are reported based on the number of loops done and in time order. Be careful to advertise that each side loop must be completed before another core control or side diamond loop may be started.

Park-O

Park-O format was developed to make orienteering more fun in a developed park area where navigation is typically easy. In Park-O there are three loops all beginning at the same location. The first loop is pre-marked to enable a mass start. Each loop has only 3 to 5 controls. Participants return to the start to mark the next loop. The mass start and looping nature allow people to cheer friends on and make for a social atmosphere.

Relay

A relay is a point to point format with loops run by a members of a team. USOF has specific guidelines for relay design and team member composition for the championship level. These are good guidelines even for a local, fun event. Typically there will be 3 or 4 loops of different technical ability and length. The runners for the first leg have a mass start. When the first leg runner completes her loop, she picks up the map for the second leg runner and hands it off to him. This hand off procedure continues between runners until the last loop is done. The team's place is based on the total time on the course and having all controls punched properly.

Course Setting Checklist

| Performed | Action |
|-----------|---|
| | <i>Following steps performed at home:</i> |
| | Get maps for course design from Mapping Coordinator or Event Coordinator 2 to 3 months in advance |
| | Pick up course setting equipment. Coordinate with the Event Coordinator where to get it. |
| | Provide preliminary course information to Meet Director for newsletter and web |
| | Select parking area, registration area and facilities |
| | Select a Finish and Start area |
| | Select your general routes for White and Yellow courses. If there are no good areas for these courses, move to another part of the map and start over with step 4 |
| | Decide on general routes for the Orange and upper courses one course at a time |
| | Select tentative points for all courses. |
| | Ensure controls are never closer than 60 meters together if on different features. If similar, no closer than 100 meters. |
| | Estimate course length and climb. If not within standards, modify the affected course |
| | Create basic control descriptions. If you don't have variety, modify some point locations. |
| | <i>Following steps are performed in the field (may be repeated):</i> |
| | Field check your points and move them as needed: |
| | Leave flagging tape at each with the event date, LAOC, and control # |
| | Update control location on your field checking map |
| | Update the control descriptions with necessary information |
| | Note if you need a stand for the control or can use a natural feature |
| | Verify that the map is correct around each control or move the control |
| | Pick water stops for all courses that are easily accessible |
| | <i>Following steps performed at home:</i> |
| | Create clean map of all flagged control locations – use to set out controls and pick them up after the event |
| | Create clean control description sheet |
| | Create clean Master map(s). Pre-mark maps either by hand or by photocopying |
| | Write up Course Setter's Notes – large sign for Registration area. |
| | Send Course Setter's Notes out by SCONET email list as a reminder of the event |
| | Create master punch cards for each course. |
| | <i>Following steps are performed in the field while setting controls out:</i> |
| | Using your master control map with all the controls, carry the correct controls and stands out to each location. |
| | Verify the control number and punch pattern |
| | Verify that the control is not hidden |
| | Place water stops at controls. Include cups and garbage bag. |
| | Give the master punch cards to the Finish person. |
| | Provide the Master and blank maps to the meet director |
| | Get a signup list started for control pickup volunteers |
| | <i>Following steps are performed for control pickup:</i> |
| | Divide the controls into areas for each person to go collect. People usually can handle 4 to 8 controls, depending on if they also are retrieving a water stop or control stands. |
| | As the controls come back in, check off the control number to ensure every control is |

| | |
|--|--|
| | retrieved. |
| | Dismantle the stands, and wrap the punch and hanging lines around each control. Place equipment neatly in provided boxes. |
| | Provide comments on your experience for the newsletter to the Meet Director. |