

# Course Measurement Guidance

One of the most vital parts of organising your event should be course measurement. It will dictate your entire course planning process and heavily influence competitors' race choices.

Triathlon Ireland does not have a course certification system in place, and cannot officially ratify course distances at any event.

## **Accurate course measurement is vital for three reasons:**

- 1.** Competitors need to know the exact distance of the course for safety reasons; a course that is longer than advertised could put athlete's bodies under unexpected stress leading to medical difficulties. Competitors will not enter events if they think they cannot complete the distance for their own safety, the information you provide will affect this decision
- 2.** Competitors use distance to pace themselves, if they plan their pacing on incorrect distance information it will lead them to underperform and, again, put their bodies under unexpected stress
- 3.** You, as an organiser, need to know the exact distances as part of your safety planning and risk assessment.

Personal Global Positioning System (GPS) devices are now common place, so competitors will often know how far they have raced. You will lose credibility if your published course distances are significantly different from competitor's personal measurements. Triathlon Ireland does not have any rules relating to course measurement, however, there are rules relating to the distance races should be held over and the maximum distances for children's events. These distances are listed in Appendix A.

## How to measure your course

### **Swim**

Swim courses can be single lap, multiple lap or point to point. All swim courses should be marked out using buoys at turn points, and sight buoys for long straight sections.

In your initial course planning all you need to know is that the swim venue is large enough for your proposed race distance. Using a GPS device you can gauge an estimated distance quite easily, it is at this point you should design the course layout.

During course setup you should position the buoys as per your plan and then, using a GPS device, you can do an initial course measurement. Once you have your initial measurement adjust the buoy positions accordingly and re-measure the course. Repeat this process until your course is accurate.

If the measurement process is completed a significant amount of time before the race start, be aware that buoys may move due to currents or adverse weather. It may be prudent to re-measure the course prior to the event start time.

## **Bike**

Bike courses can be single lap or multiple lap. Remember that for multiple lap courses any inaccuracies in distance will be multiplied.

For developing an initial course design, satellite mapping tools can be useful to get a rough course measurement without having to go out on the roads. When you have a proposed course you should cycle or drive the course with a GPS device to get an accurate reading.

Once you have your course designed you should then undertake a proper course measurement using a GPS device. This ideally should either be done on a bike or by walking the course.

When obtaining this measurement you should ensure you:

- follow the racing line, for courses on open roads this would be hugging the inside of the lane at all times, while for closed road courses it should be the shortest route possible that can be taken
- check your GPS device frequently to ensure it is working properly, if it loses signal even for a short time then the reading will be inaccurate
- repeat the measurement three times to ensure you have an accurate distance
- if you have any turn points, or want to use course distance markers these should be marked on the road using spray paint, and referenced using nearby landmarks or distinctive objects so they can be located easily. These marks should be done only once you are confident your course is accurate. If your course is very short or multiple laps, you can also use a measuring wheel to carry out the course measurement.

## **Run**

Measuring the run course is very similar to measuring the bike course. Extra care should be taken on areas of the course which are not clearly defined i.e. where competitors could cut a corner.

This is a good time to assess what course marking is needed, especially where the route is not defined. Competitors should have no option other than to follow the course laid out to them, remember what may seem an obvious route to you is not obvious to a tired runner.

Again, a GPS device should be used to perform the measurement, following the same guidance as detailed for the Bike section.

## General notes

- Course distances should be measured once competitors have left transition. Transition does not contribute to any part of the swim, bike or run course
- Wherever possible you should be flexible in where your event starts and finishes, course measurements often dictate where both lines go if you wish to meet exact distances
- When publishing course distances, you should state them in Kilometres or metres, and you should state the exact distances, not rounded up distances i.e. 39.4km instead of 40km. You should also state how the distances were measured, and if you wish state them as approximate
- GPS devices are not 100% reliable, this is why you should take several measurements to gain an accurate reading. If a GPS device loses signal even for a short period of time it can significantly affect the reading, especially on twisty courses. When a GPS device loses signal, it will measure the shortest distance from its last recorded position to the current position, if this occurs whilst going around corners then measurements can either become long or short.

## Appendix A:

<b>RACE DISTANCES TRIATHLON DISTANCES</b>	<b>SWIM</b>	<b>CYCLE</b>	<b>RUN</b>
Sprint	750m	20km	5km
Standard/Olympic	1500m	40km	10km
Middle	3000m	80km	20km
Long	4000m	120km	30km
<b>DUATHLON DISTANCES RUN CYCLE RUN</b>			
Sprint	5km	20km	2.5km
Standard	10km	40km	5km
Long (not less than)	20km	80km	10km

**AQUATHLON DISTANCES SWIM RUN**

Sprint	750m	5.km
Standard	1km	2.5km
Long (not less than)	2km	5km

**AQUABIKE DISTANCES SWIM BIKE**

Sprint	400-1000m	8-30km
Standard	1000-2000m	30-50km
Long	2000-3100km	50-100km