Newcastle Orienteering Club (NCN)
All Series Points Score (ASPS)
Version 1

Introduction

This is an attempt at combining the results from all four of NCN's series (plus the Night Champs) to produce some sort of measure of the club's "versatile" orienteers.

The series, and the categories within them, that are included in the ASPS are:

- SSS - Summer Street series, (i.e. street orienteering).
  General Classification (GC)
- BOSS - Bike Orienteering Summer series, (i.e. mountain bike orienteering).
  Line-Score, All-Score, EBike (LS, AS, E)
- UFO - Urban Foot Orienteering series, (i.e. park orienteering).
  Long, Short, (L,S)
- NC - Night Champs (i.e. park orienteering at night).
  Long, Short, (L,S)
- NOY - Newcastle Orienteer of the Year series, (i.e. traditional bush orienteering).
  Hard Long, Hard Medium, Hard Short, Moderate Long, Moderate Short, Easy, Very Easy, (HL, HM, HS, ML, MS, E, VE)

The ASPS is not, however, meant to be taken too seriously!! Nearly all of the calculations have involved making decisions that in the end have been pretty much arbitrary. So, it is freely acknowledged that there is much room for debate in every aspect of the process of combining all of NCN's orienteering series.

The remainder of this document is an attempt at explaining the decisions that were made. If nothing else, this should create plenty of opportunities for discussion!

Some Basics

- The ASPS for the year 20XX will cover the year from October the year before 20XX to the end of September 20XX.
- Only members of NCN (as 31st Jan 20XX) will be included. There is no provision for teams.
- Categories
  - Open Male Open Female

Scoring

Overall Philosophy

Each of the series is scored in a different manner and within each series there are various different courses. So, in this version of the ASPS, the results from each series is first converted into a normalised score out of 1000, taking into account the different courses within the series. Then, each of the normalised series scores is combined, via a weighting applied to each series, to give a final ASPS score, again out of 1000.

Normalising Each Series Results

SSS

The winner (of the SSS-GC category) is awarded 1000 points. Everyone else's normalised points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 1000$$

If a competitor is in both a Running category and the Walk category (and the total number of events completed is 10 or less) then those points are added together (because both categories did the same course and points are calculated with respect to the overall winner).

BOSS

The winner of the BOSS-LS category is awarded 1000 points. Everyone else's points in this category are calculated relative to the winner of this category's series total in the range 200 - 1000 via the formula:

$$normalised\ points\ =\ 200\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 800$$

The winner of the BOSS-AS category is awarded 800 points. Everyone else's points in this category are calculated relative to the winner of this category's series total via the formula:

$$normalised\ points\ =\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 800$$

The winner of the BOSS-EMTB category is awarded 600 points. Everyone else's points in this category are calculated relative to the winner of this category's series total via the formula:

$$normalised\ points\ =\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 600$$

If a competitor is in two categories, only the best category counts (because each category does a different course and points are calculated from the maximum in that course).

UFO

A competitor's overall normalised score is:

$$normalised\ points\ =\ grade\ points\ +\ finals\ points$$

The '*grade points*' component comes from the grade in which the competitor qualifies, according to:

Long A: *grade points* = 500
Long B: *grade points* = 450
Long C: *grade points* = 400
etc.

Short A: *grade points* = 150
Short B: *grade points* = 100
etc.

If a competitor doesn't not qualify for any grade then: *grade points* = 0

The '*finals points*' component comes from the competitor's result in the UFO Final as follows.

All times for competitors running the Long course are compared to the winning time run on the course by a finalist (i.e someone who qualified) via the formula:

$$finals\ points\ =\ 500\ -\left(\frac{competitor's\ time\ -\ winner's\ time}{winner's\ time}\right)\times\ 500$$

All times for competitors running the Short course are compared to the winning time run on the course by a finalist (i.e someone who qualified) via the formula:

$$finals\ points\ =\ 200\ -\left(\frac{competitor's\ time\ -\ winner's\ time}{winner's\ time}\right)\times\ 200$$

If a competitor mispunches or does not start then:

$$finals\ points\ =\ 0$$

If a competitor who hasn't qualified runs the final then:

$$finals\ points\ =\ 150\ -\left(\frac{competitor's\ time\ -\ winner's\ time}{winner's\ time}\right)\times\ 150$$

Note: With the formulas used here a competitor will earn negative *finals points* if their time is more than double the winner's time. So, arbitrarily, negative *final points* are capped at -100 (i.e. at 2.2 times the winner's time) for qualifiers and 0 for non-qualifiers

<u>NC</u>
The winner of the Long Course is awarded 1000 points. For everyone else on this course, their normalised points are calculated from the winner's time via the formula:

$$normalised\ points\ =\ 1000\ -\ \left(\frac{competitor's\ time}{winner's\ time}\right)\times\ 650$$

Note:

- With this formula a competitor would earn 350 points if their time is double the winner's time and 0 points if their time is ~2.5 times the winner's time.
- Arbitrarily, the minimum number of points a finisher on the Long course will earn is 100 points.
- A competitor who mispunches on the Long course earns 50 points.

The winner of the Short Course is awarded 350 points. For everyone else on this course, their points are calculated from the winner's time via:

$$normalised\ points\ =\ 350\ -\ \left(\frac{competitor's\ time}{winner's\ time}\right)\times\ 227.5$$

Note:

- With this formula a competitor would earn 122.5 points if their time is double the winner's time and 0 points if their time is ~2.5 times the winner's time.
- Arbitrarily, the minimum number of points a finisher on the Short course will earn is 35 points.
- A competitor who mispunches on the Short course earns 15 points.

<u>NOY</u>
The winner of the Hard Long series is awarded 1000 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 100\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 900$$

Note:

- With this formula the *normalised points* for Hard Long competitors fall in the range 100 - 1000
- With this formula a competitor with half the winner's series points earns 550 *normalised points*, i.e. $\frac{1}{2}(100\ +\ 1000)$.

The winner of the Hard Medium series is awarded 700 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 70\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 630$$

Note:

- With this formula the *normalised points* for Hard Medium competitors fall in the range 70 - 700

The winner of the Hard Short series is awarded 550 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 55\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 495$$

Note:

- With this formula the *normalised points* for Hard Short competitors fall in the range 55 - 550

The winner of the Moderate Long series is awarded 400 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 40\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 360$$

Note:

- With this formula the *normalised points* for Moderate Long competitors fall in the range 40 - 400

The winner of the Moderate Short series is awarded 250 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 25\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 225$$

Note:

- With this formula the *normalised points* for Moderate Short competitors fall in the range 25 - 250

The winner of the Easy series is awarded 150 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ =\ 15\ +\ \left(\frac{competitor's\ points}{winner's\ points}\right)\times\ 135$$

Note:

- With this formula the *normalised points* for Easy competitors fall in the range 15 - 150

The winner of the Very Easy series is awarded 100 points. For everyone else on this course, their points are calculated from the winner's points via the formula:

$$normalised\ points\ = 10 + \left(\frac{competitor's\ points}{winner's\ points}\right) \times 90$$

Note:

- With this formula the *normalised points* for Very Easy competitors fall in the range 10 - 100

If a competitor appears in two courses, then the course with largest *normalised points* is used.

The Weighting Parameters

The combining of the series scores will be done using a weighting for the "worth" of each series. Factors that might be considered in determining this “worth”:

SSS

- The final SSS score is determined via the competitor's best 10 results (from 17 events) across the season.
- Each event is of 45 minute duration.
- Navigational difficulty is at most moderate, but route choice and timing is tricky.

BOSS

- The final BOSS score is determined via the competitor's best 4 results (from 6 events) across the season.
- Each event is of 75 minute duration (but on a bike).
- Navigational difficulty is often moderate but it can be hard at times. Certainly route choice and timing is tricky.

UFO

- The final UFO result is determined via the competitor's result in the UFO Final. However, to qualify for the final a competitor has to have run at least two qualifying races.
- Each event is of around 20-40 minute duration.
- Navigational difficulty is mostly moderate.

NC

- The result here is just from one event.
- This event is around 20-40 minutes.
- Navigational difficulty is moderate to hard, (due to going out at night!)

NOY

- The final NOY score is from the competitor's best 5 results (from 8 events) across the season.
- Event length depends on the course entered but is typically around 60 minutes??
- Navigational difficulty depends on the course entered but on the Hard courses it is hard (i.e. bush navigation is much harder than Street or Park).

If the weighting parameters just reflected the number of events that are used to determine a series result then they would be:

SSS 10/(10+4+3+1+5) ~ 0.4347826087
BOSS 4/(10+4+3+1+5) ~ 0.1739130435
UFO 3/(10+4+3+1+5) ~ 0.1304347826
NC 1/(10+4+3+1+5) ~ 0.04347826087
NOY 5/(10+4+3+1+5) ~ 0.2173913043

Now, arbitrarily lower the UFO and Night weightings because the events in those series are somewhat shorter in duration.

SSS	0.43
BOSS	.17
UFO	0.1
NC	0.04
NOY	0.22

Next, arbitrarily change the weightings to reflect navigational difficulty and to make the weightings add up to 1 (by raising the NOY series and lowering the SSS series).

SSS	0.3
BOSS	0.2
UFO	0.1
NC	0.05
NOY	0.35

Note: As mentioned before, there is much room for debate in these deliberations!!

Known Issues

- The Series data in this calculation comes from series held in 2023 but the Membership data comes from 2024. (By the time I got around to working on this the 2023 membership data had been updated.)