

A Round-Robin scoring system for the Southern Athletics League

Background

There has always been a desire, since the SAL was founded (and previously in the SML and SWL), for most divisions in the SAL to compete against new teams each time in a round-robin system. The alternative (as in the YDL, for example, or in Division 3 of the SAL) is a vertically structured league where there are a small number of teams in each division which compete against each other several times during the season

From 2011 to 2022 Divisions 1 and 2 had sixteen teams in each Division. Each match was between four teams and, with five matches in the season, each team competed against three new teams each time and thereby competed against all 15 teams once each during the season.

This is a typical example (with $n=4$) of a division with $n*n$ teams, where each match has n teams and there are $n+1$ matches. A team competes against $n-1$ new teams each time. Over the season each team meets $(n+1)*(n-1) = n*n-1$ other teams – i.e. all the other teams. This is a fundamental result of round-robin systems.

At the SAL AGM in 2022, there was enthusiasm for having more teams involved in each match and fewer matches. However, for a round-robin system with five teams at each match needs divisions of 25 and six matches in a season. With six teams at each match there are seven matches and divisions of 36, neither of which is desirable.

The solution was to consider pairs of teams. Three pairs of teams at each match ($n=3$), nine pairs of teams in each division, with each pair meeting each other pair over four matches. This is the system that has operated over the last three seasons.

Scoring systems for each match

We needed a scoring system that was fair to all clubs. The system adopted was to have conventional scoring for the first round, where each team competes against its pair as well as the other teams in its match. In subsequent rounds, a team does not get points for competing against its pair but only scores points in competing against the other four teams in its match.

To see that this is a fair system, consider a particular event, say the Women's Long Jump A-string. In the first match the A-string competes against the five A-strings from the clubs and gains one point for turning up and one point for each A string she beats. In subsequent matches, she scores a point for turning up and an extra point for each of the four new A-strings she beats. Over the season she can earn four points for turning up and up to 17 points depending on how many of the other 17 Women's A-string Long Jumpers in the division that she beats. For each event, for men and women, for A-Strings and B-Strings, each competitor can compete against the 17 corresponding competitors in the league once only and can score a maximum total of 21 points for that event.

The accumulated score over the four matches with 72 events in each match (with an upper limit of $21*72 = 1512$), gives a fair total which can be used to compare the relative strengths of the teams in that Division.

League points

We have used a similar system to award league points, where a team gains a league point for beating its pair in the first round but not in subsequent rounds. This has led to dissatisfaction from some teams on the basis that a strong team, with a weak pair, has a disadvantage in rounds two to four, when their rivals in the match gain many easy match points against its weak pair and thereby makes it harder for the strong team to gain league points. This is a reasonable complaint.

It has been suggested that the matches be scored conventionally with just the league points adjusted in rounds two to four. However, this gives a strong team a considerable advantage in the accumulated match scores by gaining easy match points against its weak pair at each match, whereas other teams would only have this advantage in one match.

It appears to me that neither method of allocating league points is fair and allows all teams to compete on an equal footing independently of the strength or weakness of its pair. Since I cannot find a fair method of allocating league points, where the allocation of league points to one member of the pair is not influenced by the allocation of league points to the other member, I must conclude that league points should not be used.

Recommendation

From 2026, the teams in Divisions 1 and 2 be ranked according to their accumulated match scores, with no league points.

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