Proposal for new USCF Title System

USCF Ratings Committee

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1   Introduction and History

In the 1994 and 1996 Ratings Committee reports, we introduced and developed a reconstruction of the USCF Title System which had been approved for implementation by the Policy Board. The Title system, which we describe in detail below, rewards players with titles based on qualifying performances. Before the system was implemented, interest developed in devising a method of rewarding achievement by keeping ratings above specified thresholds. This led to the Life Achievement proposal, which was approved by a new Executive Board in 1998. While neither system was implemented, the focus now is to improve and implement the Title system from the mid-1990s. We now reintroduce that system with refinements as a proposal for issuing titles to players competing in USCF events.

The basic premise of the proposed Title system is to award permanent titles based on sustained performances at particular rating levels. To be more concrete, a player who is vying for the expert title would need to demonstrate several qualifying tournament performances in which his game results would be considered notable for someone rated 2000. For each qualifying performance, a single norm or multiple norms are awarded. Once either three, four, or five norms are collected (more norms are required for higher titles), a title for that level is issued. Norms and titles cannot be lost through poor performance or inactivity. The new main feature of the currently proposed system is to add a minimum rating threshold, so that a player who earns five norms for the expert title must also have, or have had, an established rating of at least 2000.

2   The norm criteria

The 1994 Ratings Committee Report established the following principle upon which to calibrate the Title system:

- A player possessing the ability of a Y-rated player would have approximately a 50% probability of obtaining the Y-title (via five norms) in 10 events.

This is roughly equivalent to

- A player possessing the ability of a Y-rated player would have approximately a 32.5% probability of obtaining a Y-*norm* in a single event.

This means, for example, that a player whose true playing strength is 1800 will earn a Class A norm with typical play in roughly one out of three events. More specifically, a player is awarded a norm or multiple norms if his or her attained result in an event exceeds the expected result of a Y-rated player by a certain threshold amount (which depends on the number of games in the event). This threshold amount is denoted Δ. Two norms in a single event are awarded with probability $(0.325)^2$, three norms with probability $(0.325)^3$, and so on.

Using conservative estimates of the variability of game results given players' ratings, and using the normal distribution as a conservative approximation to the distribution of a player's total score in an event (as an approximation to the Binomial distribution), the calculation of Δ's corresponding to the above rule are straightforward. From a single event in which a competitor plays n games, requiring $n \geq 4$, the following norm schedule is proposed:

- To earn 1 norm, $\Delta = 0.227\sqrt{n}$.
- To earn 2 norms, $\Delta = 0.625\sqrt{n}$.
- To earn 3 norms, $\Delta = 0.910\sqrt{n}$.
- To earn 4 norms, $\Delta = 1.142\sqrt{n}$.
- To earn the title, $\Delta = 1.343\sqrt{n}$.

Example:

Suppose an established player without any Expert norms with a rating of 2030 competes in a 5-round event against players rated 1950, 2140, 2050, 2090, and 2160, with three wins, a draw and a loss. We want to calculate the number of Expert norms the player earns.

First, the winning expectancies (the formula appears on the USCF rating formula sheet) for each game are computed relative to a player whose rating is 2000, as follows:

$$We(2000,\ 1950) \quad = \quad 0.571$$
$$We(2000,\ 2140) \quad = \quad 0.309$$

$$\begin{aligned}
We(2000,\ 2050) &= 0.429 \\
We(2000,\ 2090) &= 0.373 \\
We(2000,\ 2160) &= 0.285
\end{aligned}$$

The sum of the winning expectancies is 1.967, which is the player's overall expected score. With an actual total score of 3.5, the player has outperformed his expected score by $3.5 - 1.967 = 1.533$.

To determine the number of norms (if any) are to be awarded, we now compare 1.533 to the norm thresholds. For a $n = 5$ round event, the thresholds are given by

- To earn 1 norm, $\Delta = 0.227\sqrt{n} = 0.227\sqrt{5} = 0.508$.
- To earn 2 norms, $\Delta = 0.625\sqrt{n} = 0.625\sqrt{5} = 1.398$.
- To earn 3 norms, $\Delta = 0.910\sqrt{n} = 0.910\sqrt{5} = 2.035$.
- To earn 4 norms, $\Delta = 1.142\sqrt{n} = 1.142\sqrt{5} = 2.554$.
- To earn the title, $\Delta = 1.343\sqrt{n} = 1.343\sqrt{5} = 3.003$.

Because the amount the player has outperformed his expected score, 1.533, is above the thresholds for one and two norms (0.508, 1.398) but below the threshold for three norms (2.035), the player earns two norms towards the Expert title for his impressive performance.

By a similar calculation, the player would also earn four norms towards the Class A title, and five norms towards the Class B title, that is, the title itself.

3 Gold norms

For the Senior Master and Advanced Senior Master levels, an extra requirement is stipulated for earning a title. Instead of simply awarding titles based on accruing five norms in events where a player plays at least four games, the Title system requires that at least one norm comes from the U.S. Championship or a qualifying event. Examples that may be considered qualifying events include the U.S. Open, the World Open, the National Open, and the U.S. Masters.

A norm or multiple norms obtained from such events are denoted "Gold" norms, and the additional rule is that the Senior Master and Advanced Senior Master titles require that at least one norm towards these titles is a Gold norm.

4   Proposed Norm and Title rules

The following table outlines the set of titles and the required number of norms necessary to earn the titles.

Rating Level	Title	Minimum number of norms for Title
400	Novice Category III	3
600	Novice Category II	3
800	Novice Category I	3
1000	Class E	4
1200	Class D	4
1400	Class C	4
1600	Class B	4
1800	Class A	4
2000	Expert	5
2200	Master	5
2400	Senior Master	5 (at least 1 Gold)
2600	Advanced Senior Master	5 (at least 1 Gold)

1. Norms can only be earned in events of 4 rounds or more.

2. A norm is earned, or multiple norms are earned, toward a Y-title when a player's total score in an event exceeds the expected total score of a Y-rated player by the value of Δ given in Section 2.

3. The number of norms required to earn a title is given in the table above.

4. To earn the Y-title, a player's established rating must be or have exceeded a rating of Y.

5. A player's results from an event apply simultaneously to every norm for titles not already earned. Thus, a player may be working on several titles at once.

6. For the Senior Master and Advanced Senior Master levels, at least one of the norms towards those titles must be a Gold norm.

7. Norms cannot be earned in Quick chess events, matches, and fractional-K events.

8. The current proposal has no effect on the original Life Master title, which requires 300 games above a rating of 2200.