

# MASSEY RATINGS

- **Inputs**

The computer model utilizes the score, location, and date of each game played during the season. Generally, a dominant win on the road is more impressive than a narrow victory at home. And recent results are more relevant than games played months ago. The computer considers the outcome of each game. Optionally, some games may be assigned more or less weight than usual (e.g. playoffs or exhibitions). All games are analyzed in concert, so that the impressiveness of each win is constantly being re-evaluated in light of the other results.

- **Model**

The mathematical rating model is based on maximizing the retrospective probability of the observed game results. Each outcome generates a “force” on the teams involved, attempting to push the winner above the loser. But as the algorithm adjusts the ratings to create an equilibrium, a ripple effect occurs throughout the entire network of teams. Opponents’ opponents’ opponents’ . . . ad infinitum are influenced by some degree. By chains of interaction, it is possible to compare teams that are geographically dispersed.

- **Margin of Victory**

Each game score is translated to a probability that the winner is really the better team. A narrow win of 27-24 might translate to 58%, while a blowout of 45-14 gives 98%. The cap of 100% enforces diminishing returns to running up the score.

- **Pace**

The model does not discriminate against styles of play that result in fewer total points. In football for example, a team that typically wins games 24-10 may be considered more impressive than a team that wins 49-31 barnburners.

- **Strength of Schedule**

Each team is measured by its performance relative to the opposition faced. Ratings and strength of schedule are calculated simultaneously so that schematically

$$\text{rating} = \text{performance} \oplus \text{strength of schedule}$$

The model is able to accurately compare e.g. a team that went 9-1 against weak competition to a team that went 6-4 against a brutal schedule.

- **Mismatches**

The model derives most of its information from games between teams of similar strength. Therefore there should be no incentive to scheduling inferior opponents, since there is limited reward to wins and potentially large downside in the unlikely event of an upset. With regard to strength of schedule, it is more difficult for an elite team to face #2 and #100 than to face #39 and #40.

- **Head-to-Head**

Sometimes lower ranked teams defeat higher ranked teams. These “upsets” are inevitable and should be tolerated since each team is rated according to its entire “body of work”. A single head-to-head result is not always consistent with rankings derived as a best fit for the entire season.

- **Pre/Early Season**

The model usually requires about 5 games for each team to produce accurate ratings. In order to publish reasonable early season ratings, the previous two seasons’ results are used to produce starting points. The influence of these initial values decreases exponentially as the current season progresses.

- **Objectivity**

All teams are treated equally and anonymously, without regard to name brands or affiliations. The computer can assess bad or mediocre teams just as well as the teams at the top.

- **Rating and Power**

A team's rating is designed to reward the most impressive resumes, giving more credit to wins, regardless of how dominant they were. In contrast, the "Power" of a team is more indicative of the true strength of the team. The power of a team is broken in to offensive and defensive components, which can be combined to forecast typical scores for a given matchup, as well as the associated probabilities of winning.



Thacher	3	128	11	8	3	0	91	66	6.062	85	7.023	91	-2.416	93	6.327	0.143	0	-5.029
Wilson/LongBeach	3	124	10	8	2	0	121	26	5.852	92	6.56	113	-2.547	94	6.788	-0.448	0	-9.883
Viewpoint	3	79	13	9	4	0	136	93	5.992	88	7.118	89	-2.71	95	7.41	-1.235	0	-4.971
Crean Lutheran	3	24	19	13	6	0	174	112	6.021	86	7.131	87	-2.785	96	6.418	-0.318	0	-5.282
San Marcos	3	19	16	7	9	0	146	157	5.692	97	6.85	101	-3.441	98	7.858	-2.414	0	-3.581
Downey	3	110	17	8	9	0	154	156	5.781	95	6.99	94	-3.467	99	8.078	-2.659	0	-3.32
El Segundo	3	16	19	5	14	0	153	216	5.661	99	6.865	100	-3.615	100	7.877	-2.606	0	-1.146
Calabasas	3	42	17	5	12	0	109	180	5.657	100	6.962	97	-4.146	101	6.361	-1.621	0	-1.202
El Modena	3	27	20	10	10	0	166	131	5.567	103	6.77	104	-4.353	102	5.45	-0.917	0	-5.895
Simi Valley	3	48	21	5	16	0	107	156	5.431	107	6.545	114	-4.556	103	4.132	0.198	0	-2.954
Roosevelt	3	17	19	11	8	0	150	133	5.584	102	6.823	103	-4.637	105	5.782	-1.533	0	-6.117
Santa Barbara	3	109	13	7	6	0	133	108	5.493	106	6.732	105	-4.789	106	6.699	-2.602	0	-6.011
Murrieta Mesa	3	74	17	8	8	1	116	168	5.52	105	6.944	98	-5.744	107	5.952	-2.81	0	-3.774
Portola	3	108	12	3	9	0	131	167	5.098	115	6.462	120	-6.001	109	8.937	-6.052	0	-3.994
El Dorado	3	20	19	3	15	1	106	222	5.244	110	6.642	108	-6.118	110	5.382	-2.615	0	-1.825
Glendale	3	15	19	8	11	0	156	205	5.309	109	6.713	106	-6.284	111	6.362	-3.761	0	-4.949
Valencia/Valencia	3	77	15	3	12	0	85	181	5.123	114	6.489	119	-6.681	112	5.288	-3.083	0	-2.564
Marina	3	22	14	3	11	0	85	195	5.152	111	6.67	107	-6.696	113	6.911	-4.721	0	-2.003
Linfield Christian	3	50	20	14	6	0	247	175	5.091	116	6.577	112	-7.508	116	7.291	-5.913	0	-10.391
Dos Pueblos	3	95	17	6	11	0	122	172	5.125	113	6.6	110	-7.537	117	4.748	-3.399	0	-5.134
Norco	3	5	20	5	15	0	87	213	5.086	117	6.614	109	-7.824	118	4.413	-3.351	0	-3.142
Poly/LongBeach	3	125	11	7	4	0	99	68	4.943	120	6.255	129	-8.147	120	4.645	-3.906	0	-10.735
Centennial/Corona	3	51	17	5	12	0	60	126	5.002	118	6.495	118	-8.34	123	1.731	-1.185	0	-5.003
Poly/Riverside	3	13	19	11	8	0	161	155	4.989	119	6.529	116	-8.556	124	4.51	-4.181	0	-9.152
Murrieta Valley	3	25	17	5	12	0	110	197	4.812	121	6.382	123	-8.783	125	4.91	-4.807	0	-5.71
Grace Brethren	3	87	16	4	12	0	109	168	4.704	125	6.326	126	-9.345	126	4.198	-4.657	0	-6.096
Irvine	3	23	14	1	13	0	47	201	4.738	123	6.517	117	-9.569	127	3.74	-4.423	0	-0.444
Capistrano Valley	3	93	14	1	13	0	47	227	4.658	127	6.539	115	-9.58	128	4.976	-5.67	0	-0.549
Heritage	3	133	1	0	1	0	10	15	4.106	135	5.74	141	-9.631	129	5.915	-6.66	0	-6.94
Seegerstrom	3	10	16	4	12	0	97	180	4.679	126	6.409	122	-10.094	130	3.666	-4.874	0	-5.641
Beverly Hills	3	102	9	1	8	0	16	109	4.427	130	6.299	127	-10.914	132	1.17	-3.198	0	-3.564
Damien	3	55	17	7	10	0	103	150	4.532	128	6.254	130	-11.28	133	1.866	-4.26	0	-9.273
Corona	3	14	20	4	16	0	87	198	4.383	132	6.124	132	-11.297	134	2.103	-4.514	0	-7.02
Village Christian	3	28	18	4	14	0	110	195	4.128	134	5.934	135	-12.36	136	2.462	-5.936	0	-8.929
Royal	3	18	18	1	17	0	48	247	3.975	136	5.952	134	-13.512	137	1.507	-6.133	0	-4.602
Heritage Christian	3	4	15	2	13	0	82	227	3.926	137	5.963	133	-13.768	138	3.522	-8.404	0	-7.119
LaCanada	3	104	4	1	3	0	30	59	3.662	140	5.737	142	-14.091	139	3.445	-8.65	0	-10.216
Lakewood	3	54	18	4	14	0	43	182	3.756	138	5.823	138	-15.584	141	-0.713	-5.985	0	-9.842
Esperanza	3	94	10	0	10	0	22	164	3.382	145	5.796	139	-16.015	142	1.488	-8.618	0	-5.113
Hemet	3	39	15	2	13	0	76	178	3.584	142	5.729	143	-16.08	143	0.134	-7.329	0	-9.55
Paloma Valley	3	96	12	1	11	0	32	151	3.436	144	5.636	144	-16.523	144	-0.866	-6.772	0	-8.976
Ochoa Prep Academy	3	85	10	3	7	0	30	114	3.593	141	5.772	140	-16.795	145	-0.478	-7.431	0	-11.129
Cabrillo/Long Beach	3	86	13	0	13	0	14	158	3.145	147	5.414	147	-17.027	146	-1.45	-6.691	0	-7.885
Lynwood	3	53	7	0	7	0	9	96	2.795	148	5.303	148	-19.169	147	-1.797	-8.487	0	-9.995
LagunaHills	3	115	12	1	11	0	12	238	3.221	146	6.252	131	-19.241	148	0.326	-10.681	0	-4.975