

Blog Entry © Saturday, December 13, 2025, by James Pate Williams, Jr., Curve Fitting
Georgia Statewide Temperature Averages from 1895 to 2001 Using a Polynomial Least
Squares

Back in 2011 or earlier I created a polynomial least squares curve fitting dynamic link library in C#. With the aid of the Microsoft Artificial Intelligence Agent Copilot, I was able to translate my C# code into C++ on December 7 - 8, 2025. My reference for Gaussian Elimination with Partial Pivoting C++ and matrix inverse source code was translated from FORTRAN 77 code found in ***Numerical Analysis: An Algorithmic Approach Second or Third Edition*** © 1980 by S. D. Conte and Carl de Boor. For predicting temperatures, I used the years 2002 – 2025. My predictions showed a gradual increase in the yearly average temperatures which is consistent with the Theory of Global Warming. Using a 16-degree polynomial I obtained the following data in degrees Fahrenheit (Imperial Unit):

Observed Fitted Temperature Data

Month	MinDev	AvgDev	MaxDev	LMSErr
Jan	0.024	3.029	13.771	0.024
Feb	0.005	2.765	9.233	0.005
Mar	0.054	2.827	8.741	0.054
Apr	0.022	1.785	4.912	0.022
May	0.020	1.691	4.912	0.020
Jun	0.000	1.318	4.339	0.000
Jul	0.018	1.039	3.751	0.018
Aug	0.027	0.961	2.975	0.027
Sep	0.029	1.637	6.882	0.029
Oct	0.016	1.950	8.303	0.016
Nov	0.005	2.287	6.441	0.005
Dec	0.014	2.801	8.594	0.014

Mon	Observ	Experi
Jan	46.817	46.817
Feb	49.083	49.083
Mar	56.030	56.030
Apr	63.363	63.363
May	71.249	71.249
Jun	77.722	77.722
Jul	79.986	79.986
Aug	79.345	79.345
Sep	74.789	74.789
Oct	64.662	64.662
Nov	54.945	54.945
Dec	47.848	47.848

Predicted Annual Average Temperatures

Year	Temp-F
2002	63.602
2003	63.366
2004	63.358
2005	63.449
2006	63.561
2007	63.651
2008	63.703
2009	63.715
2010	63.696
2011	63.658
2012	63.615
2013	63.579
2014	63.560
2015	63.565
2016	63.596
2017	63.656
2018	63.740
2019	63.844
2020	63.963
2021	64.090
2022	64.218
2023	64.342
2024	64.454
2025	64.552

Similar results were found using a 2-degree, 4-degree, and 8-degree polynomial.

[Average Temperature in Georgia by Year](#)