Logistic Regression (17 classes):

The values are in order: (C, solver, penalty)

MODEL 1	Accuracy
100 words (1, newton-cg, L2)	76.36%
500 words (1, newton-cg, L2)	78.82%
1000 words (1, newton-cg, L2)	79.88%

MODEL 2	Accuracy
100 words (1, newton-cg, L2)	77.42%
500 words (1, newton-cg, L2)	79.24%
1000 words (1, newton-cg, L2)	80.11%

MODEL 3	Accuracy
100 words (1, newton-cg, L2)	77.80%
500 words (1, newton-cg, L2)	79.39%
1000 words (1, lbfgs, L2)	80.14%

Confusion Matrix for Logistic Regression (Model 3; 1000 words) 0.02 0.01 0.05 0.01 0.01 0.02 0.01 0.00 0.01 0.04 0.01 0.03 0.01 0.02 Agriculture 0.06 0.59 0.03 0.04 0.00 0.00 0.04 0.02 0.05 0.01 0.06 0.02 0.03 0.01 0.00 0.01 0.03 Botany 0.00 0.00 0.69 0.01 0.00 0.01 0.05 0.00 0.03 0.00 0.00 0.02 0.03 0.00 0.14 0.01 Church 0.00 0.01 0.02 0.00 0.19 0.01 0.01 0.02 0.00 0.02 0.00 0.02 0.13 0.00 0.01 0.01 Commerce 0.92 0.01 0.00 0.00 0.01 0.00 0.00 0.00 0.01 0.00 0.00 0.03 0.01 0.00 Drama · 0.90 0.02 0.00 0.01 0.00 0.00 0.01 0.01 0.00 0.00 0.02 0.01 0.00 0.00 0.01 Fiction 0.05 0.03 0.74 0.01 0.02 0.00 0.03 0.01 0.04 0.01 0.00 0.00 History 0.02 0.00 0.00 0.01 0.11 0.68 0.00 0.01 0.06 0.02 0.01 0.00 0.00 0.00 0.06 0.01 History Natural 0.01 0.02 0.08 0.00 0.00 0.74 0.00 0.01 0.01 0.05 0.02 0.04 0.01 Law 0.01 0.01 0.00 0.01 0.00 0.00 0.83 0.01 0.07 0.02 0.00 0.00 0.00 0.01 0.01 0.00 Mathematics 0.01 0.00 0.01 0.00 0.01 0.01 0.00 0.00 0.91 0.00 0.01 0.00 Medicine 0.01 0.03 0.03 0.02 0.10 0.06 0.03 0.01 0.02 0.03 0.03 0.01 0.00 0.61 0.01 Physics · 0.02 0.00 0.02 0.01 0.01 0.00 0.00 0.00 0.00 0.00 0.90 0.01 Poetry 0.74 0.00 0.00 0.00 0.01 0.04 0.00 0.06 0.00 0.00 0.00 0.03 0.02 0.01 Politics · 0.03 0.02 0.03 0.01 0.01 0.01 0.01 0.01 0.07 0.01 0.73 0.01 Rhetoric 0.00 0.00 0.00 0.00 0.01 0.00 0.90 0.00 0.00 0.00 0.01 0.00 Sermons 0.00 0.01 0.02 0.00 0.04 0.07 0.01 0.01 0.00 0.02 0.00 0.02 0.01 0.75 0.02 Travels Agriculture Botany Church Commerce Drama Ection History Matural Law Mathematic Medicine Physics Poetry Politics Emetoric Zermons Lawes

- 0.8

0.6

0.4

0.2

0.0

Predicted label