For a Bayesian analysis comparing two groups we use the following sampling model (Hoff p. 127):

$$\begin{aligned}
Y_{i,1} &= \mu + \delta + \epsilon_{i,1} \\
Y_{i,2} &= \mu + \delta + \epsilon_{i,2} \\
\{\epsilon_{i,j}\} &\sim \text{i.i.d. normal}\left(0, \sigma^2\right).
\end{aligned}$$

Letting $\theta_1 = \mu + \delta$ and $\theta_2 = \mu - \delta$ we see that $\delta = (\theta_1 - \theta_2)/2$ is half the population difference in means, and $\mu = (\theta_1 + \theta_2)/2$ is the pooled average. We'll assume conjugate prior distributions

$$\begin{aligned}
p\left(\mu, \delta, \sigma^2\right) &= p(\mu) \times p(\delta) \times p\left(\sigma^2\right) \\
\mu &\sim \text{normal}\left(\mu_0, \gamma_0^2\right) \\
\delta &\sim \text{normal}\left(\delta_0, \tau_0^2\right) \\
\sigma^2 &\sim \text{inverse-gamma}\left(\nu_0/2, \nu_0\sigma_0^2/2\right),
\end{aligned}$$

from which the full conditional distributions follow:

$\{\mu | \mathbf{y}_1, \mathbf{y}_2, \delta, \sigma^2\} \sim \text{normal}\left(\mu_n, \gamma_n^2\right)$, where

$$\mu_n = \gamma_n^2 \times \left[\frac{\mu_0}{\gamma_0^2} + \frac{\sum_{i=1}^{n_1}(y_{i,1} - \delta) + \sum_{i=1}^{n_2}(y_{i,2} + \delta)}{\sigma^2}\right]$$

$$\gamma_n^2 = \left[\frac{1}{\gamma_0^2} + \frac{(n_1 + n_2)}{\sigma^2}\right]^{-1}$$